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SARNIA OXIDANT STUDY

June 27 - July 18, 1984

Report on the Airborne Measurements

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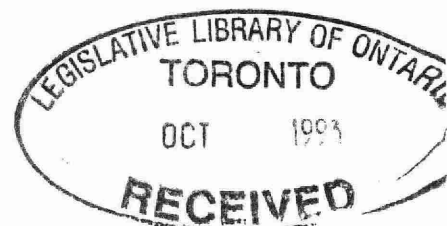
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Table of Contents

List of Figures	i
List of Tables	iii
Acknowledgements	iv
Introduction	1
Instrumentation	3
Flight Summaries	13
References	57.1
Appendix - A (Data Tabulation)	58
Appendix - B (Aircraft Hydrocarbon Data)	162

LIST OF FIGURES

Fig. 1:	Sarnia Oxidant Study Area Map	2
Fig. 2:	Piper Navajo Aircraft Used in the Study	5
Fig. 3a:	Airborne Instrument Package Configuration	7
Fig. 3b:	Aircraft Floor Plan for Instrumented Racks	7
Fig. 4:	Hivol Sampling Subsystem	8
Fig. 5a:	Sampling Probes and Meteorological Sensors (Top View)	10
Fig. 5b:	Same as Fig. 5a but Side View	10
Fig. 5c:	Same as 5a but actual Photograph of the Installation (Top View)	11
Fig. 5d:	Same as 5c but Side View	12
Fig. 6:	Flight Path (red) for June 27, 1984. Ozone Concentrations (relative - see text) along the Flight Path are Shown in Green	17
Fig. 7:	Plots of Parameters Monitored in Real Time Hi Vol and HC Sampling Times are Shown by Special Symbols (see legend) - June 27, 1984	18
Fig. 8:	Same as Fig. 6 but for June 28, 1984	20
Fig. 9:	Same as Fig. 7 but for June 28, 1984	21
Fig. 10:	Same as Fig. 6 but for July 3, 1984 (Flt. 1)	23
Fig. 11:	Same as Fig. 7 but for July 3, 1984 (Flt. 1)	24
Fig. 12:	Same as Fig. 6 but for July 3, 1984 (Flt. 2)	26
Fig. 13:	Same as Fig. 7 but for July 3, 1984 (Flt. 2)	27
Fig. 14:	Same as Fig. 6 but for July 5, 1984	29
Fig. 15:	Same as Fig. 7 but for July 5, 1984	30

Fig. 16:	Same as Fig. 6 but for July 7, 1984	32
Fig. 17:	Same as Fig. 7 but for July 7, 1984	33
Fig. 18:	Same as Fig. 6 but for July 8, 1984 (Flt. 1)	35
Fig. 19:	Same as Fig. 7 but for July 8, 1984 (Flt. 1)	36
Fig. 20:	Same as Fig. 6 but for July 8, 1984 (Flt. 2)	38
Fig. 21:	Same as Fig. 7 but for July 8, 1984 (Flt. 2)	39
Fig. 22:	Same as Fig. 6 but for July 13, 1984 (Flt. 1)	41
Fig. 23:	Same as Fig. 7 but for July 13, 1984 (Flt. 1)	42
Fig. 24:	Same as Fig. 6 but for July 13, 1984 (Flt. 2)	44
Fig. 25:	Same as Fig. 7 but for July 13, 1984 (Flt. 2)	45
Fig. 26:	Same as Fig. 6 but for July 14, 1984	47
Fig. 27:	Same as Fig. 7 but for July 14, 1984	48
Fig. 28:	Same as Fig. 6 but for July 16, 1984	50
Fig. 29:	Same as Fig. 7 but for July 16, 1984	51
Fig. 30:	Same as Fig. 6 but for July 17, 1984	53
Fig. 31:	Same as Fig. 7 but for July 17, 1984	54
Fig. 32:	Same as Fig. 6 but for July 18, 1984	56
Fig. 33:	Same as Fig. 7 but for July 18, 1984	57

LIST OF TABLES

<i>Table 1:</i>	<i>Aircraft Instrumentation and Specifications</i>	<i>4</i>
<i>Table 2:</i>	<i>Sarnia Oxidant Study - Hi Vol Filter Data</i>	<i>15</i>

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Introduction:

The detrimental effects of ozone on various crops such as tobacco, soyabeans and other leafy vegetables in southern Ontario have been well documented (Linzon et. al., 1984). Ozone is not emitted directly into the atmosphere by industrial sources, but is produced photochemically. It is also present at high concentrations in the stratosphere. Hydrocarbon and nitrogen oxide emissions from various sources, including petrochemical industries, automobiles and utilities are the anthropogenic precursors of most of the tropospheric ozone. The ozone, as well as its precursors, can be transported over long distances by synoptic scale wind systems, causing high ozone levels in areas which are quite distant from the precursor source area. (See, for example, Evans et al., 1983; Chung, 1977; Shenfeld et al., 1978; Heidorn, and Yap, 1984).

As part of Ontario's program to develop an oxidant control strategy, the southwestern regional office of the Ministry of the Environment (MOE) requested the Atmospheric Research and Special Programs Section of Air Resources Branch, to conduct an investigation into the effects of emissions from the Sarnia petrochemical complex on the ozone levels in southwestern Ontario (Figure 1). The data presented in this report were collected during an airborne survey carried out in response to this request. In addition to the airborne measurements, extensive ground based monitoring was also carried out at Camlachie and Courtright. This ground based monitoring was further supplemented by the MOE and Lambton Industrial Society's (LIS) ongoing monitoring network. These data are reported elsewhere (report ARB 020-85-ARSP, ARB 021-85-ARSP, ARB 022-85-ARSP, ARB 023-85-AQM and ARB 024-85-ARSP).

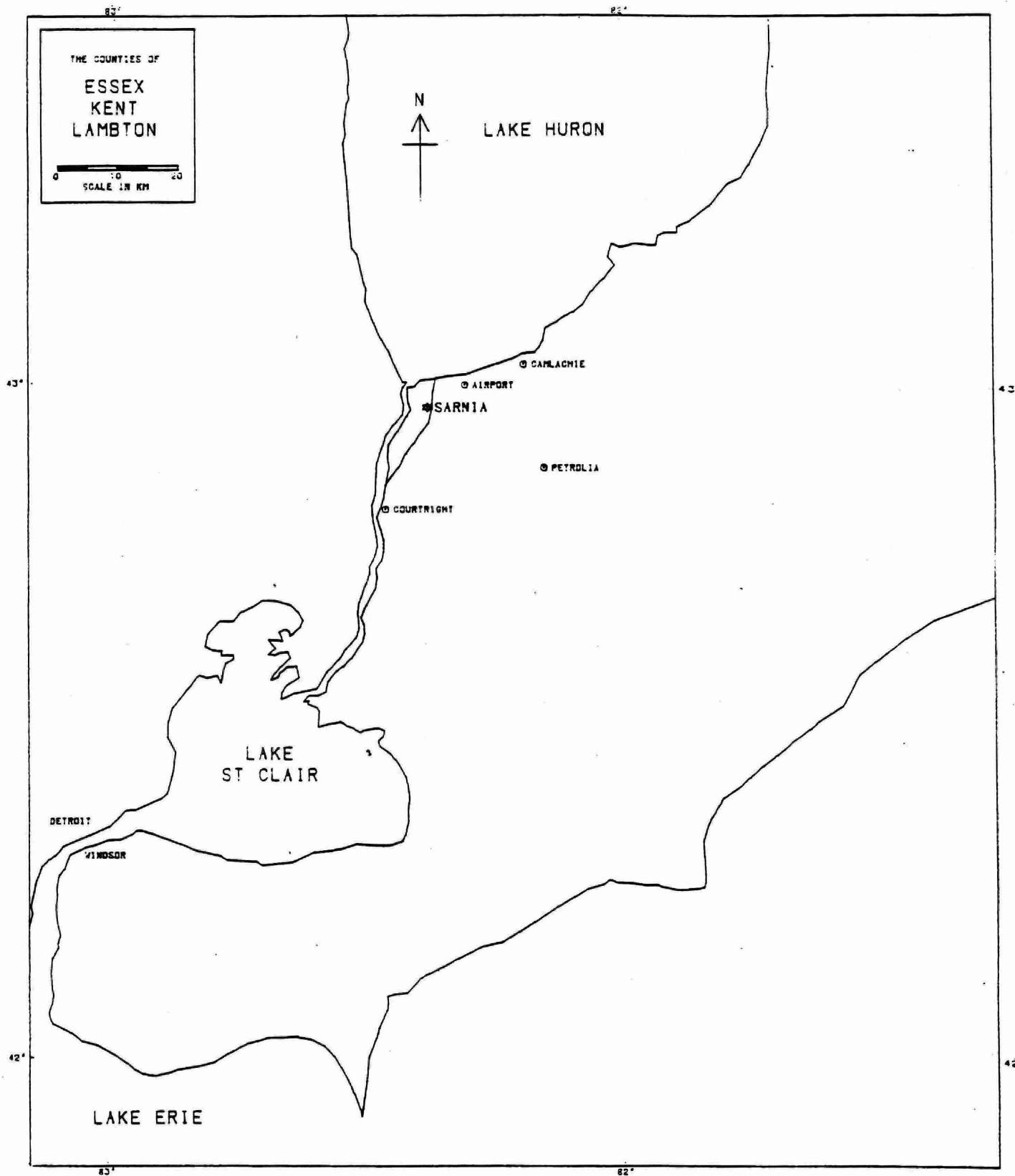


Figure 1: Sarnia Oxidant Study Area Map

INSTRUMENTATION:

A twin engine Piper Navajo aircraft (Figure 2) was selected for this study. This plane was selected for two reasons - firstly, the endurance (flights up to five hours could be planned) and secondly, the availability of sufficient space for the instrument package. The parameters measured were ozone (O_3), nitrogen oxides (NO , NO_2), hydrocarbons (total as well as individual species), sulfur dioxide (SO_2) light-scattering particulates (with a nephelometer) as well as particulate sulphate and nitrate, and vapor phase nitric acid. The temperature and dew point were also monitored. Table 1 summarizes the instrumentation used in the study.

Figure 3 (a) shows the general layout of the three instrumented racks and 3 (b) shows the aircraft floor plan. Power was provided through two one kilowatt inverters (TOPAZ and AVIONICS) from the aircraft's 28 V main bus.

Instrument Racks; Rack #1 contained the data acquisition system, consisting of a data logger (Radian DART-II), two dual pen Rikadenki strip chart recorders and an APPLE microcomputer. The O_3 , NO/NO_x , B-Scat and temperature sensors were connected to the strip chart recorder as well as the data logger. All the remaining monitors were connected only to the data logger. The data logger sampled all channels once every second and then stored half-minute averages on a TARGA magnetic bubble disk emulator system. The APPLE microcomputer system was primarily used for viewing raw data and for controlling the data logger. After each flight, all the data from the TARGA disk emulator were transferred onto APPLE 5 $\frac{1}{4}$ " floppy disks for further processing and validation. Chart recorders were used for backup as well as visual in-flight plume monitoring. A temperature transducer and an ethylene cylinder for the O_3 monitor were installed at the back of Rack #1.

Gaseous monitors for O_3 , NO/NO_x , SO_2 , and control units for the integrating nephelometer and dew point sensor, were installed in Rack #2.

Table 1
AIRCRAFT INSTRUMENTATION AND SPECIFICATIONS

Navigation

All standard equipment VOR, GYROS, DME

Additional Equipment : LORAN-C
Altitude : Rosemount pressure transducer
Accuracy: +/- 50 ft
Range: 10,000 ft.

Meteorological

Temperature : Rosemount Model 102E4AL
Signal Conditioner Model 510BF131
Range: -50 to +50 deg. C
Accuracy: +/-0.4% full scale

Dew Point : E G & G Model 137-C3 Hygrometer
Range: 0 to 70 deg. C
Accuracy: +/-0.5 deg. C

Chemical and Physical Real Time

NO/NO_x/NO₂ : Monitor Labs Model 8840 (Chemiluminescent)
Range (used): 0 to 500 ppb
Min. Detectable Level: 2 ppb
Precision: 0.8 ppb at 100 ppb
1.0 ppb at 400 ppb

SO₂ : SIGN-X Model 600 Series (Conductivity)
Range (used): 0 to 1 ppb
Accuracy: +/-5% of full scale

O₃ : Bendix Model 8002TM (Chemiluminescent)
Range (used): 0.5 ppm
Precision: +/-2% from mean value
on 0 - 0.1 ppm range
Time Constant (used): 10 sec.

Hydrocarbons : HNU photoionization detector
Range (used): 20 ppm

Light Scattering Coefficient

MRI Intergerating Nephelometer Model
1550B
Accuracy: +/-10% of scale for 8-Scat
Averaging Time (used): 2 secs.
Flash/sec (used): 8

Chemical (Cumulative)

SO₄, NO₃,
SO₂, HNO₃ : Staplex HiVol Filter Pack
Flow Rate: approx. 15 SCFM

Hydrocarbons : Grab samples collected in evacuated
stainless steel flasks. Flow rate
controlled by calibrated orifices.
Subsequent analysis by gas chromatography.

Data Acquisition

Data Logger : DART-II (Radian) 10 channels sampled
once every second. Averaging period
30 seconds. A/D accuracy: 16 bits.
Data stored on TARGA magnetic bubble
disk emulator system.

Data Display : Apple II+ microcomputer

Data Backup : Two dual pen RIKKADENKI chart recorders



Figure 2: Piper Navajo Aircraft Used in the Study

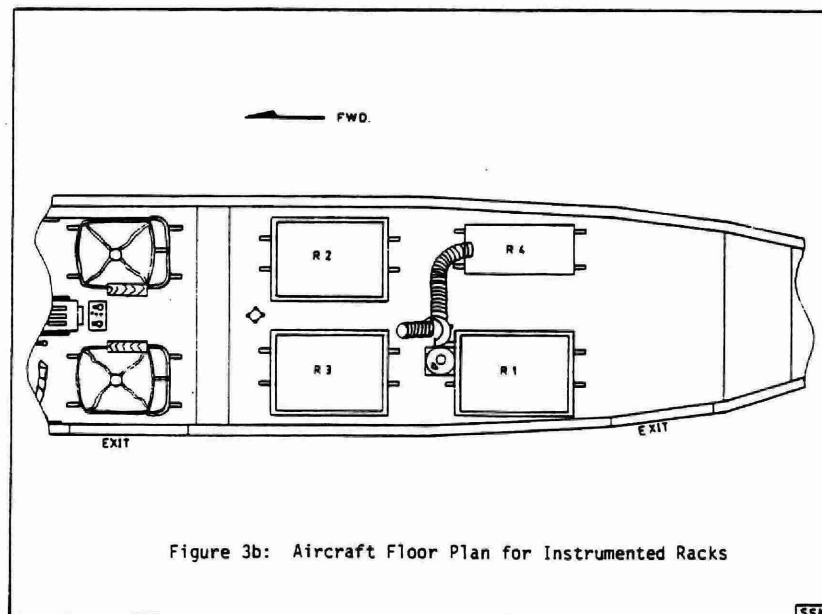
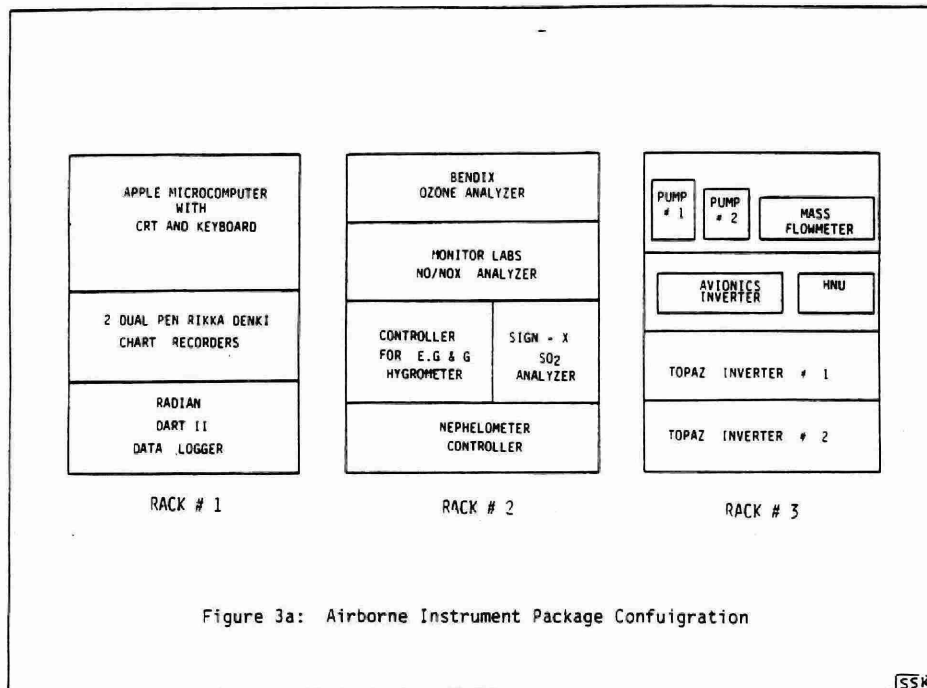
The two inverters, photoionization detector, control unit for the mass flowmeter, height transducer, and pumps for the NO/NO_x analyzer and nephelometer were installed in Rack #3.

HiVol Sampler: Particulate sulphates and nitrates, vapor phase nitric acid and sulphur dioxide were sampled using filter pack techniques developed at Brookhaven National Laboratory (BNL, 1983). A 28 V Stapex HiVol sampler was mounted on the floor in front of Rack #2 (locations R4 in Figure 3b). A flexible hose was used for connecting the HiVol sampler to the filter pack unit (Figure 4). A Hastings mass flowmeter was used in-line behind the filter pack, for monitoring the air flow through the pack. The filter pack had three stages. The first stage had a quartz fibre filter to collect particulates, the second stage had a sodium chloride impregnated cellulose filter to collect nitric acid, and the last stage had a cellulose filter impregnated with potassium carbonate to absorb sulphur dioxide. The sampling rate was approximately 15 SCFM, and samples were generally collected over half-to one-hour periods. Samples were later analysed at the Ministry's Laboratory in Rexdale, after aqueous extraction of the filters, by ion-exchange chromatography.

Hydrocarbon Sampling: Evacuated stainless steel flasks (purchased from Biostatic Research, Hillsboro, Ore.) were used for collecting hydrocarbon grab samples. The flow rate into the flasks was controlled by calibrated orifices. The sampling time was 15 or 30 minutes, depending on the flight and traverse. Samples were analysed by gas chromatography within about three hours of the flight termination. The technique is described in further detail in Report ARB-022-85-ARSP.

Navigational System: In addition to the standard onboard navigational aids, the aircraft was equipped with a LORAN-C navigational system, which proved to be of considerable assistance when flying over areas with poor ground reference points, such as water bodies.

Sampling Lines: There were four inlet lines. A 3 in. I/D aluminum tube was used for the HiVol sampler; a 1 in. I/D aluminum tube was used for the nephelometer; a ½ in. stainless steel tube for all gaseous monitors; and a ¼ in. stainless tube for the hydrocarbon grab sampling. The 3 in. aluminum line to the HiVol sampler was designed for isokinetic sampling



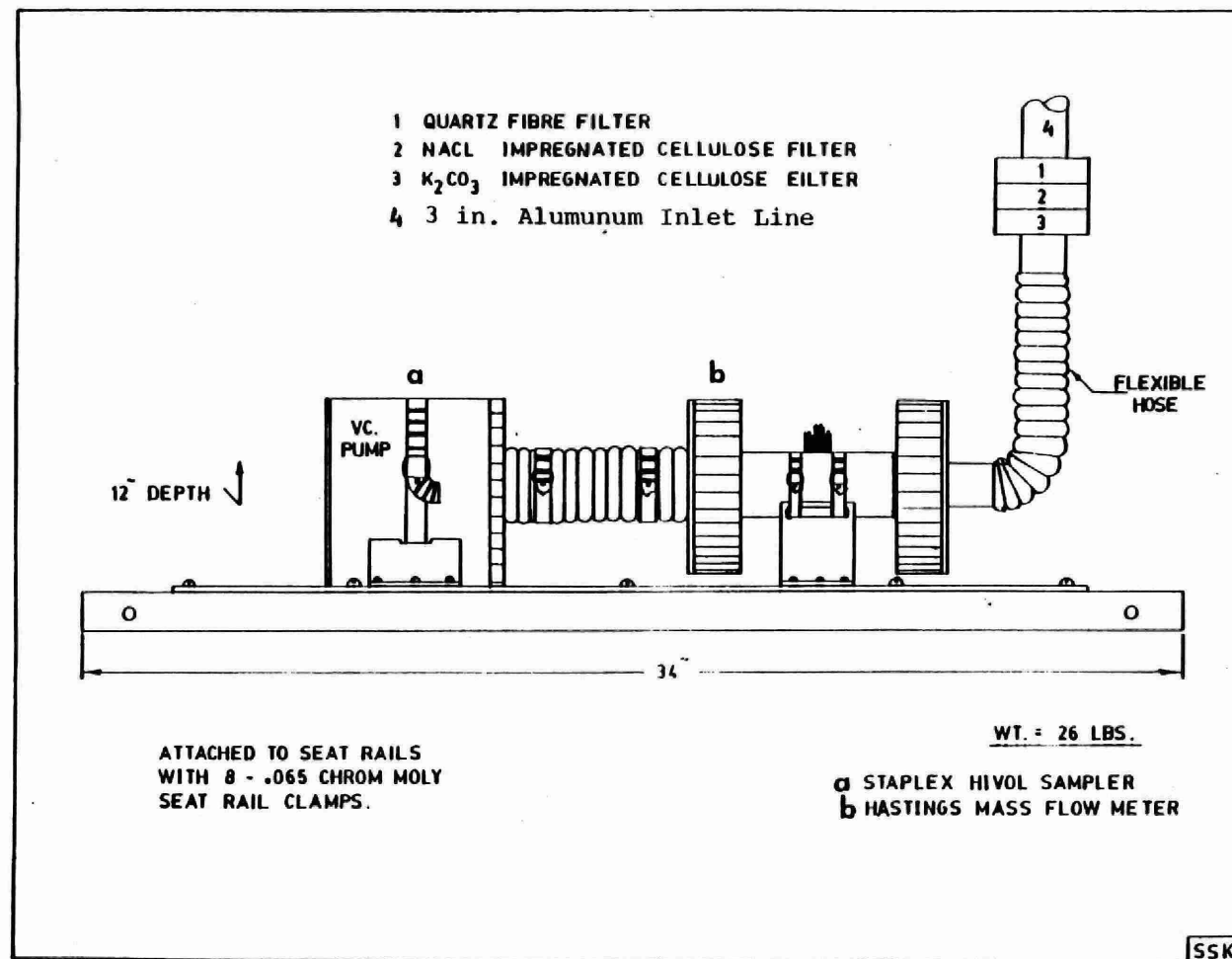


Figure 4: HiVol Sampling Subsystem

at aircraft speeds of about 160 km/h. It had a conical cover that could be activated from within the aircraft. To minimize contamination of the HiVol samples, this line was covered at all times between landing and takeoff.

Figure 5a and b shows the general layout of the inlet tubes. The entire assembly, including the isokinetic probe for the Hi Vol, was mounted on the top of the fuselage (Figs. 5c and d). This configuration assured virtually no contamination from aircraft exhaust and ground debris. Both the temperature and dew point sensors were also mounted in the same area. Ethylene from the ozone monitor was exhausted in the tail area of the aircraft.

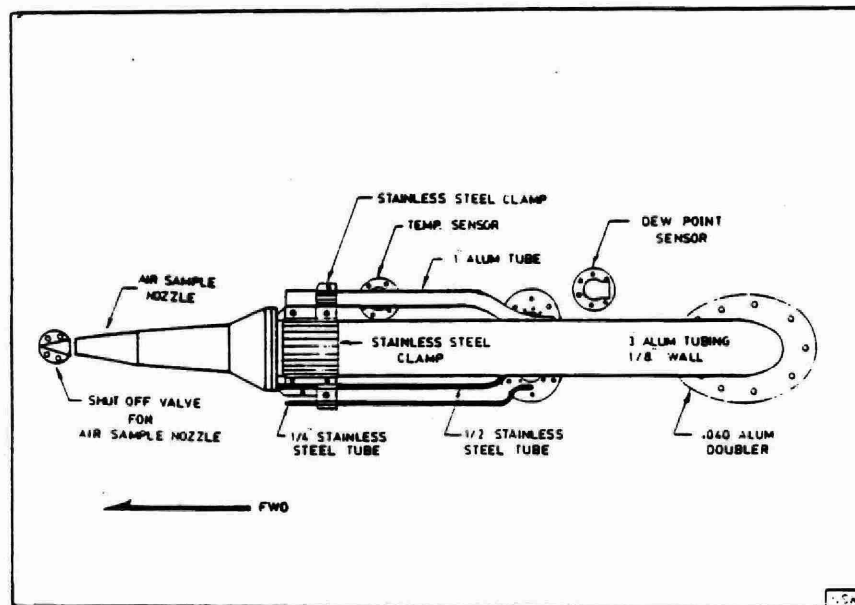


Figure 5a: Sampling Probes and Meteorological Sensors (Top View)

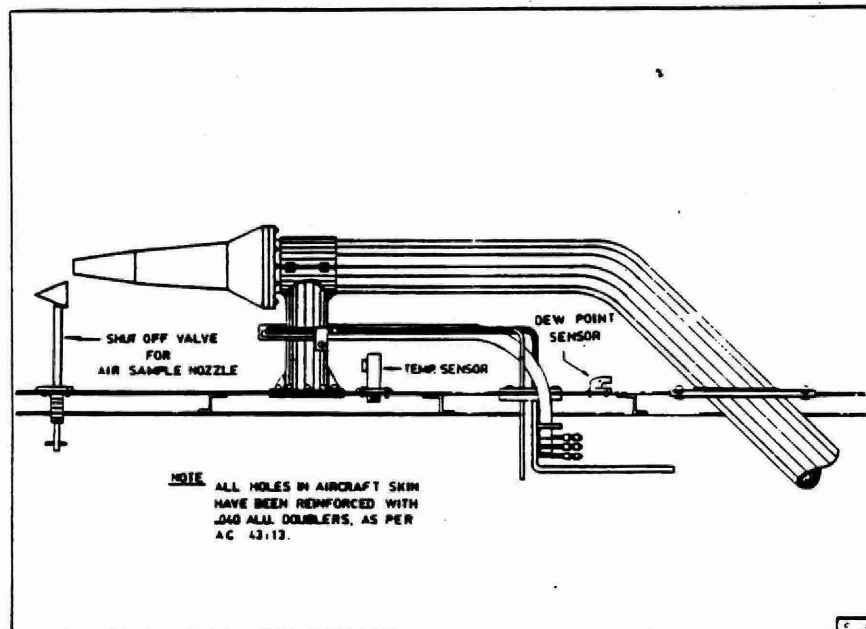


Figure 5b: Same as 5a but Side View

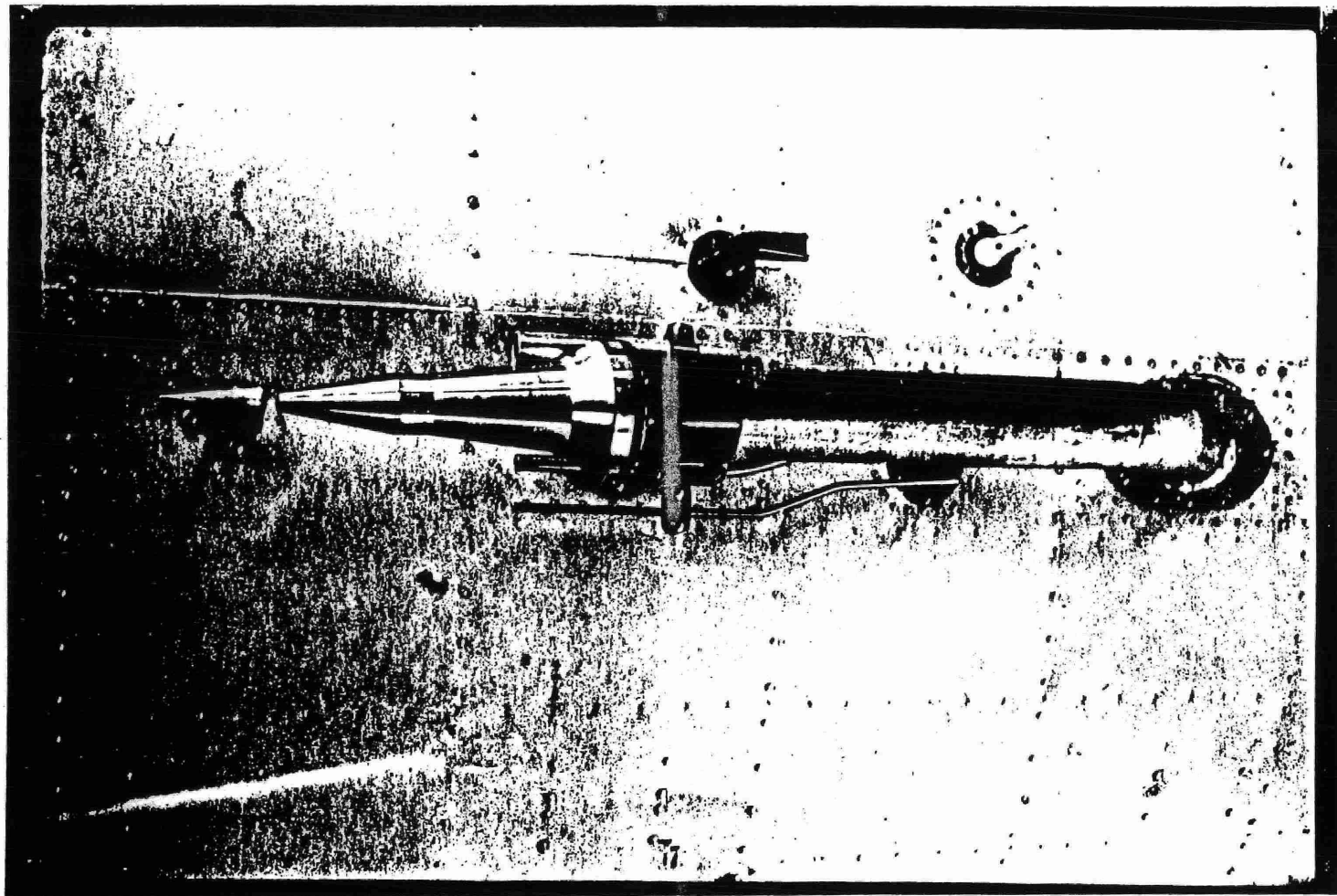


Figure 5c : Same as 5a but actual Photograph of the Installation

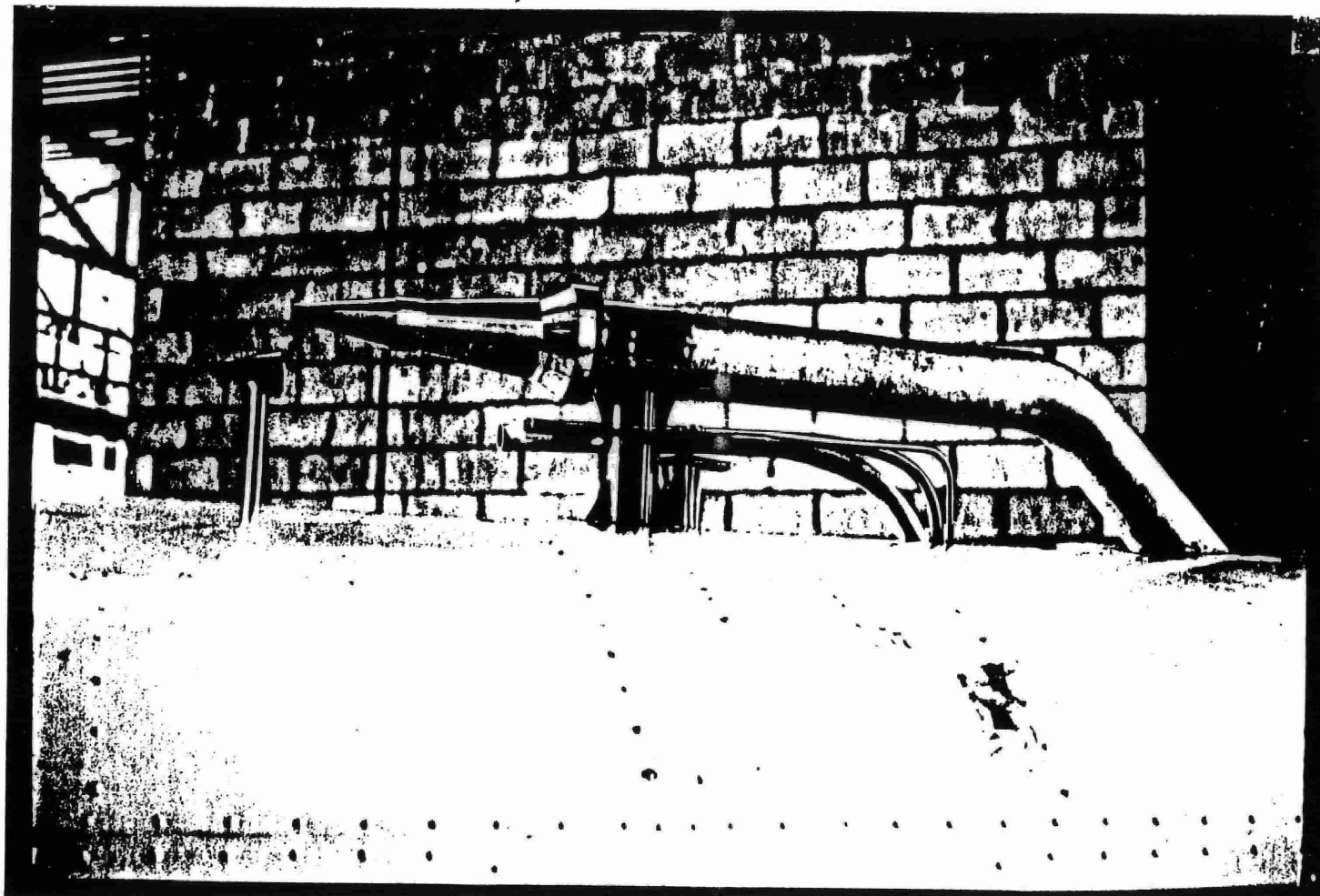


Figure 5d : Same as 5c but Side View

FLIGHT SUMMARIES

A total of 13 flights were carried out in the Sarnia area from June 27, 1984 to July 18, 1984. In view of the principal objective of this study, i.e. to identify the effect of the Sarnia petrochemical complex on ozone levels in the area, most of the sampling was done downwind. However, upwind transects were also carried out, to establish the background levels.

Flight Scheduling: Around 8:30 a.m., the Sarnia airport weather office was consulted regarding the general synoptic conditions for the day. Flight plans were based on this information and upper level winds obtained from the two minisonde sites at Camlachie and Petrolia. Close radio contact was maintained between the aircraft and the airport base station, to inform the aircraft crew of any significant wind shifts during the course of the flight. The cruising speed was typically around 110 knots at an altitude of approximately 300 to 400 m MSL. To examine vertical structure, spirals were carried out on most flights. The spirals usually commenced at an altitude of roughly 1000 m MSL and descended to about 70 to 80 m above ground/water level.

In the following sections, each flight is briefly described, along with some comments on the observed data. Appendix A contains a tabulation of the actual thirty second average concentrations.

Each flight summary is accompanied by a map showing the sampling locations, a map showing the forward trajectories as well as a graphical presentation of the results. The map shows the transects flown, in red, and the net ozone concentrations obtained at each point by subtracting the overall transect average value from the actually observed value at the point (in green). All transects are numbered at the beginning point only. A key on the map shows the start and end time of each transect. Forward trajectories, originating from near the Sarnia airport and the Detroit area (at the beginning and end of the measurement period) are also shown on the map. These trajectories are based on surface geostrophic winds and hence only give the probable location of the Sarnia, and on some occasions the Detroit, emission plumes. The graphical presentation of flight data is split into several sections, with all parameters plotted as a function of time. The lower section shows the aircraft's altitude, and times when the

hydrocarbon cannisters and HiVol filter packs were sampling. It also shows the approximate time when the aircraft was near the shoreline. The ozone results are shown above this section. Since nitrogen oxides can markedly affect the ozone profile (NO is an efficient scavenger of ozone), to facilitate the interpretation of the results, their concentrations are plotted above the ozone. Finally, at the top, some plume tracer parameters are plotted, viz. SO₂, total hydrocarbons (as measured by the photo-ionization detector), and light-scattering particulates (expressed as the Beer-Lambert coefficient, B-scat). Because of uncertainties in the absolute magnitude of the SO₂ and total hydrocarbons, they are expressed as a ratio of the measured value to the average value for a particular traverse.

If a spiral was flown, a separate plot shows the results for ozone concentrations and temperature as a function of altitude.

The hydrocarbons data taken during the flights are reported in Appendix B. The filter pack results are shown in Table 2. The results of surface measurements of air quality and meteorological parameters are reported in companion volumes (reports ARB 020-85-ARSP and ARB 023-85-AQM).

Table # 2

SARNIA Oxidant Study
HiVol Filter Data*

Date 1984	Traverse Location	Flow Litres	Quartz NO3	SO4	NaCl NO3	K2CO3 SO2
Jun 27	Upwind	1204	1.2	12.0	0.1	15.2 #
	Downwind	1087	1.6	14.0	0.3	18.4 #
Jun 28	Upwind	1215	1.6	12.0	0.0 #	24.7
	Downwind 3	847	2.0	20.0	0.0 #	35.4
	Downwind 5	736	9.5	31.0	0.2 #	43.0
	Downwind 7	994	4.5	32.0	1.4	21.8
Jul 3	Upwind	1620	4.8	64.0	10.4	3.1 #
	Flt 1 Downwind	2135	5.1	91.0	8.5	39.8
	Flt 2 Downwind	3277	3.8	126.0	10.6	23.4 #
Jul 5	Upwind	731	8.2	75.0	0.0 #	45.6
	Downwind	2005	8.3	54.0	0.8 #	62.3
Jul 7	Upwind	2249	0.8	6.0	0.0 #	6.7 #
	Downwind	2529	0.8	9.0	0.1 #	9.9 #
Jul 8	Downwind	2888	0.9	20.0	1.3	38.0
Flt 1						
Flt 2	Upwind	779	1.9	6.0	0.3 #	29.9 #
	Downwind	4282	1.4	17.0	3.0	50.9
Jul 13	Upwind	1427	1.4	6.0	0.8 #	24.5
	Downwind	878	5.1	67.0	10.4	347.0
Jul 14	Upwind	1104	10.4	54.0	9.8	70.9
	Downwind	2577	7.5	58.0	6.4	151.9
Jul 16	Upwind	510	1.0 #	4.0 #	0.0 #	0.0 #
	Downwind	3582	1.5	13.0	0.6	74.4
Jul 18	Upwind	782	1.5	17.0	0.3 #	6.4 #
	Downwind	2651	1.6	15.0	0.5	38.8

* NOTE : Units are in ug/m³

NOTE : # Denotes Conc less than blank value

JUNE 27, 1984, 1434 - 1700 EDT:

This was the first flight of the study. Skies were generally overcast with strong winds from the west gusting to 30-40 km/h. Figure 6 shows the flight path selected. The aircraft took off at 14:34. The first traverse was upwind and was followed by four downwind traverses. A HiVol and hydrocarbon (HC) sample were taken during the upwind and downwind traverses. There were no instrument malfunctions. A zero check was performed before landing.

GENERAL COMMENTS (Refer to Figure 7)

Air temperature at the flight level (approximately 450 m) was in the 18 to 21°C range. Upwind ozone levels were uniform and were about 40 ppb. NO_x concentrations were less than 10 ppb (we should note here that "downwind" levels as used here refer to the concentration along the entire transect, and not just the Sarnia plume).

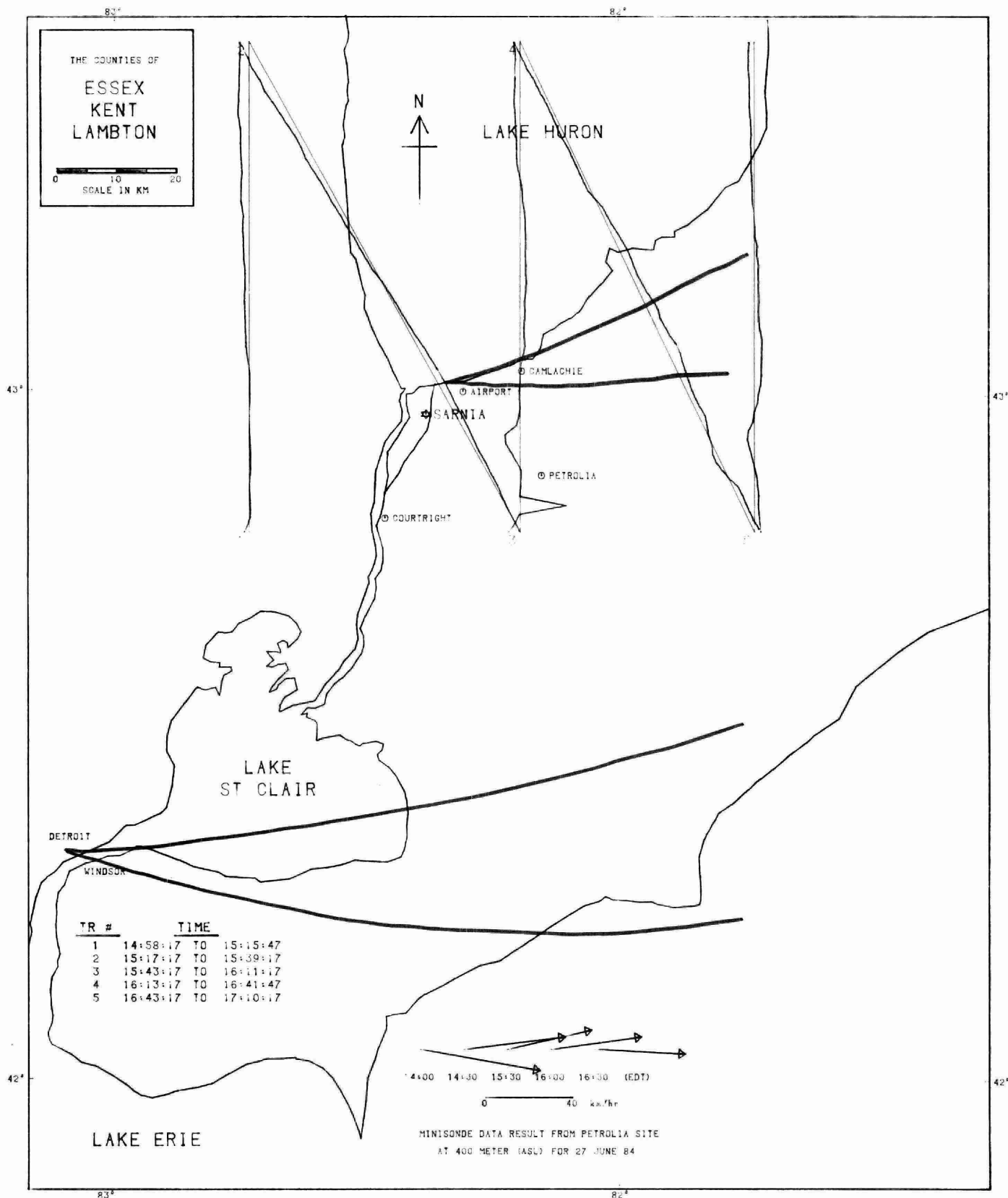


Fig. 6: Flight Path (red) for June 27, 1984. Ozone Concentrations (relative - see text) along the Flight Path are Shown in Green

AIRCRAFT DATA FOR
27-JUNE-84

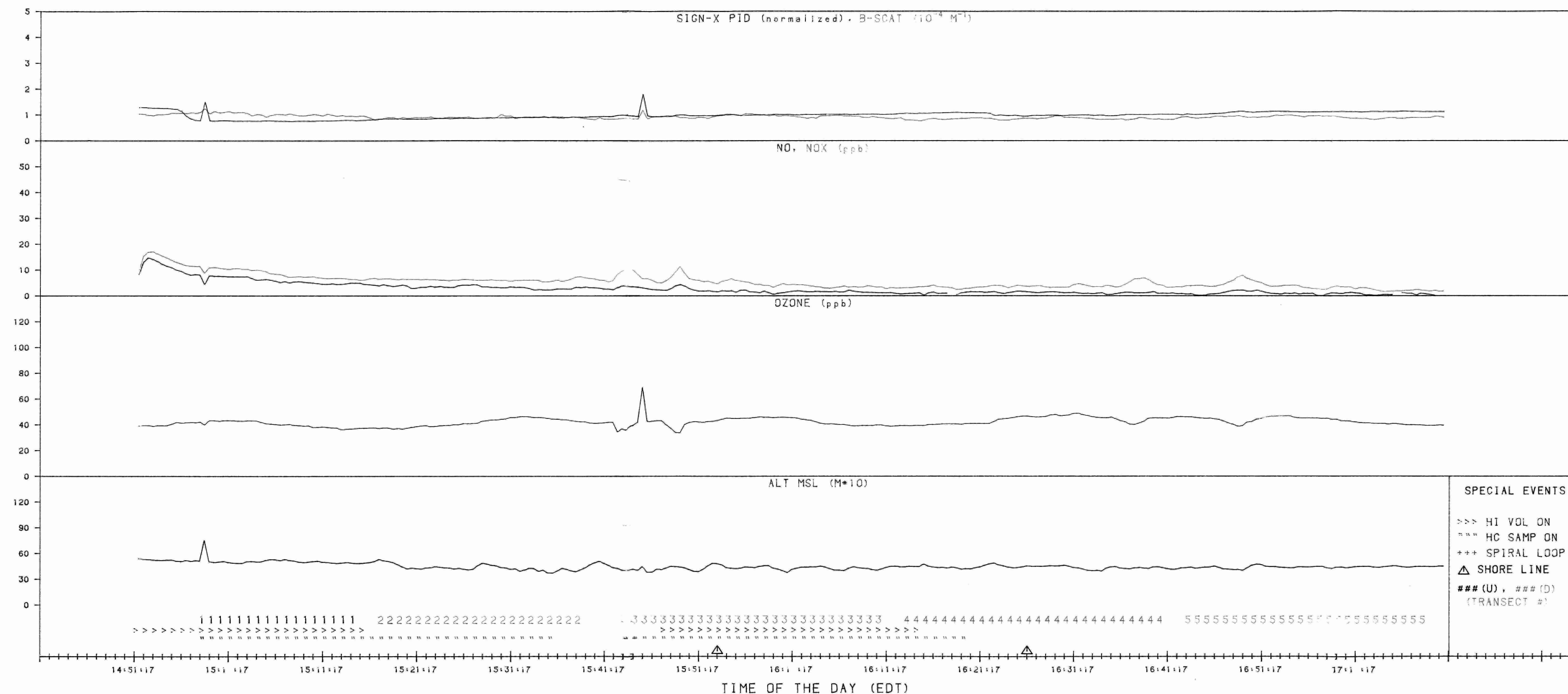


Fig. 7: Plots of Parameters Monitored in Real Time
Hi Vol and HC Sampling Times are Shown by
Special Symbols (see legend) - June 27, 1984

JUNE 28, 1984, 10:20 - 13:50 EDT:

All three meteorological stations (airport, Camlachie and Petrolia) reported westerly winds. Under cloudy skies the air temperature ($^{\circ}\text{C}$) was in the mid 20's at 10:30 a.m. Figure 8 shows the flight path selected. The flight commenced at 10:20 a.m. and the first upwind traverse was flown at 10:39. The downwind traverses started at 11:06 and were completed by 13:50. One Hi Vol and one HC sample were collected upwind, and four HiVol and three HC samples were collected during the downwind traverses. All the instruments functioned normally. Prior to landing, all instruments were checked for zero drift.

GENERAL COMMENTS (Refer to Figure 9)

Upwind ozone concentrations were generally lower than the downwind levels by about 10 to 15 ppb. NO/NO_x levels were similar, averaging less than 10 ppb. Individual plumes were observed along the shoreline within which scavenging of ozone by NO_x was evident. The significance of the downwind vs. upwind ozone measurements, and the role of Sarnia emissions, will have to be determined in conjunction with the surface ozone data taken during the course of this flight, since the upwind measurements were taken first, and there is generally an increase in the regional ozone levels through the late morning and early afternoon.

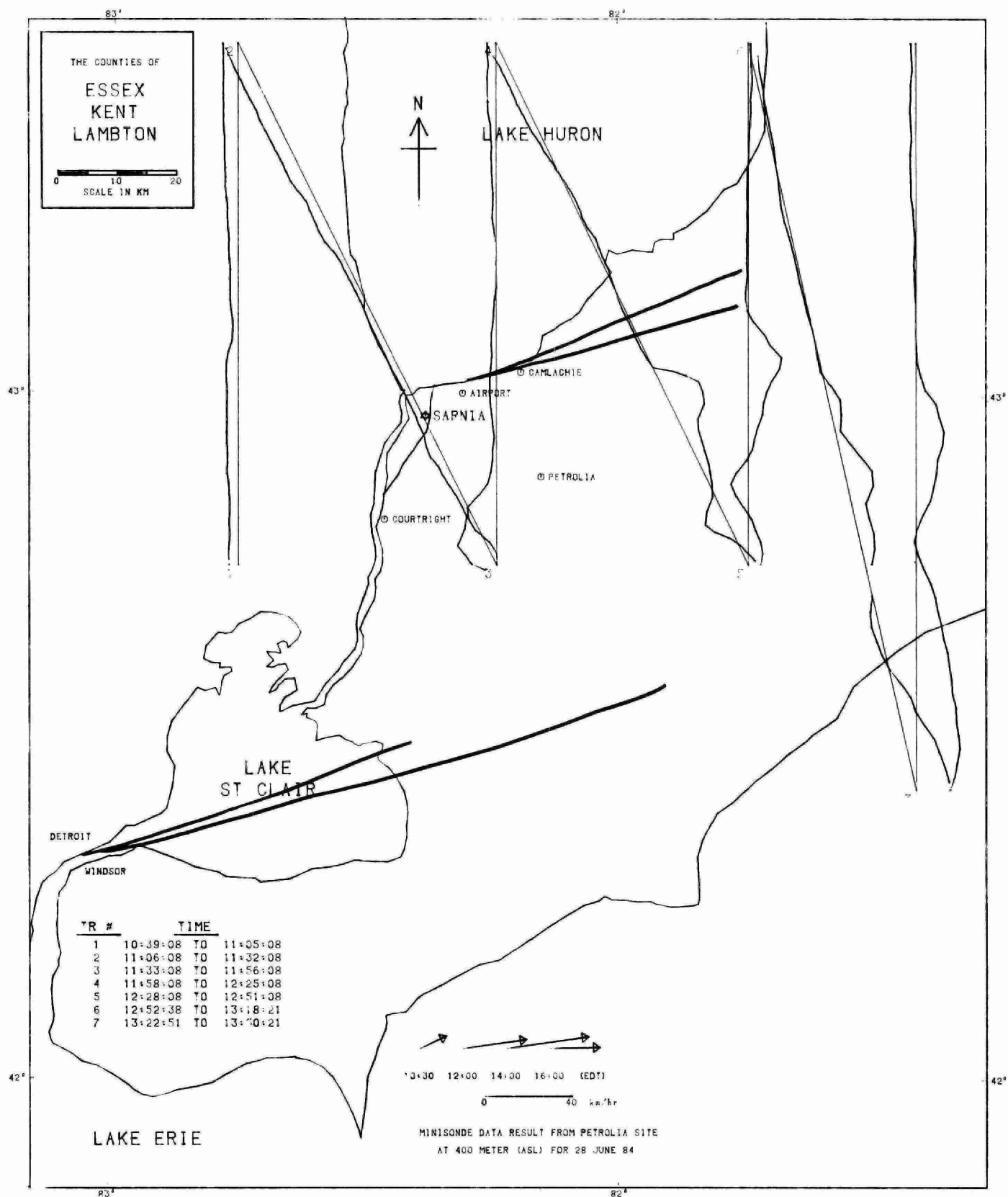


Fig. 8: Same as Fig. 6 but for June 28, 1984

AIRCRAFT DATA FOR
28-JUNE-84

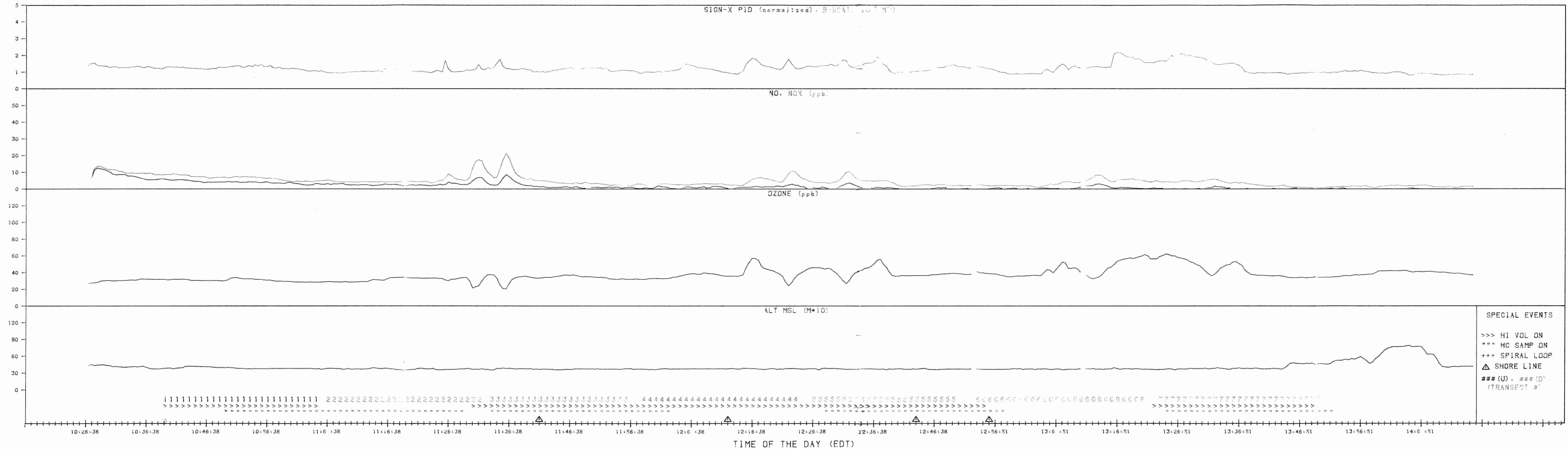


Fig. 9: Same as Fig. 7 but for June 28, 1984

JULY 3, 1984:

FLIGHT #1: 11:10 - 13:42 EDT:

Under generally clear skies, winds were moderate (10 to 15 km/h) from the southwest. Figure 10 shows the flight path for this day. An upwind traverse was flown from Petrolia to Adair. After completing the downwind traverses, a close spiral (radius 5 km) was flown over the lake northeast of Sarnia. The spiral started at 1290 m and terminated at about 220 m MSL. One HiVol and one HC sample were collected during the upwind traverse and also during traverses No. 3 and 4. There were no instrument malfunctions.

GENERAL COMMENTS (Refer to Figure 11)

Air temperature at flight level (500 m MSL) was 25 to 26°C throughout the flight. There was about a 10 to 15 ppb differential between upwind and downwind ozone levels. Overall ozone levels were in the 80 ppb range. A spiral over the lake showed an ozone bulge between 600 and 750 m MSL. Scavenging of ozone by NO/NO_x plumes was quite evident. Background NO/NO_x levels were in the 5 to 10 ppb range. NO/NO_x levels were higher when the plumes were crossed.

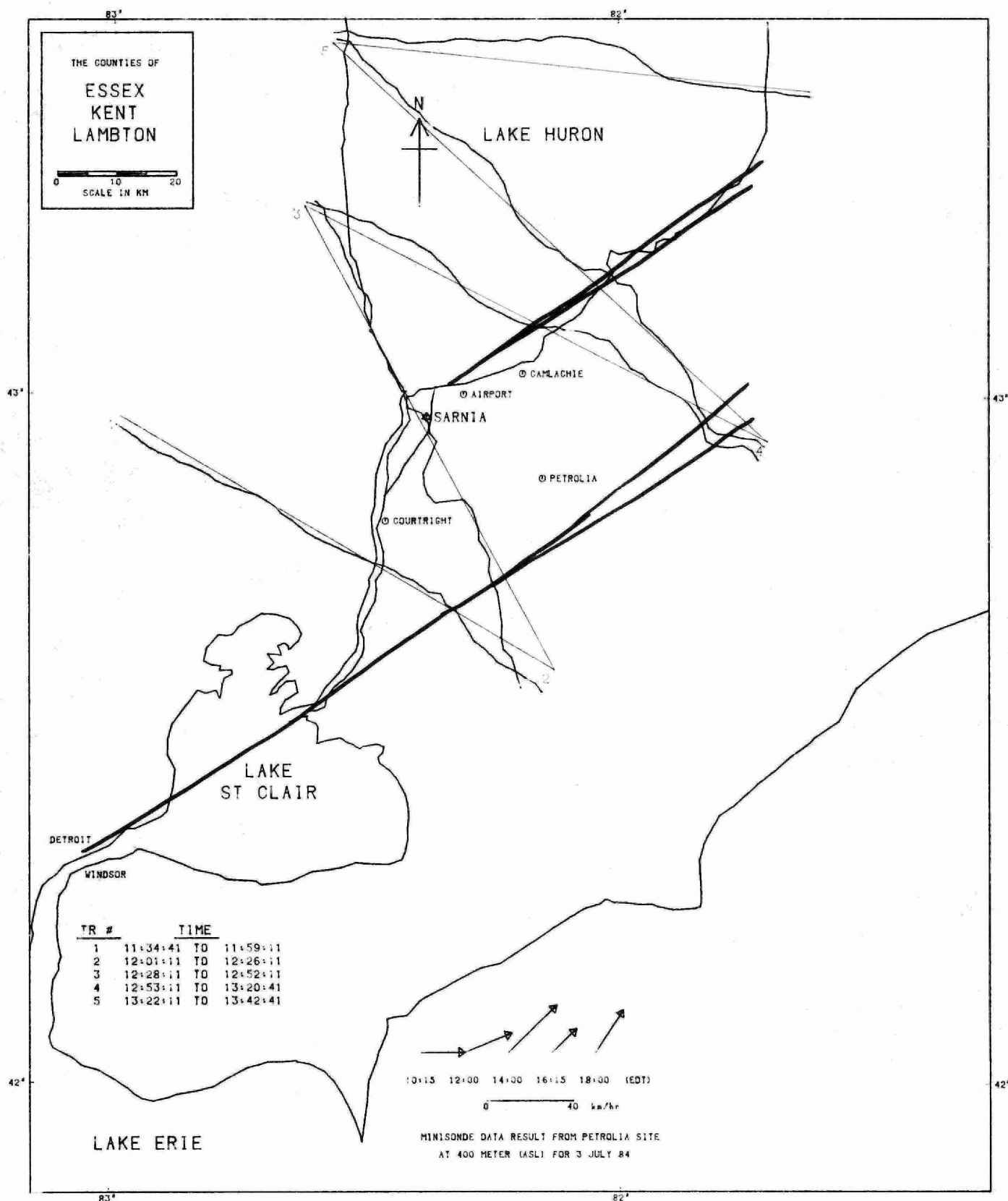


Fig. 10: Same as Fig. 6 but for July 3, 1984 (Flt. 1)

AIRCRAFT DATA FOR
03-JULY-84
FLIGHT # 1

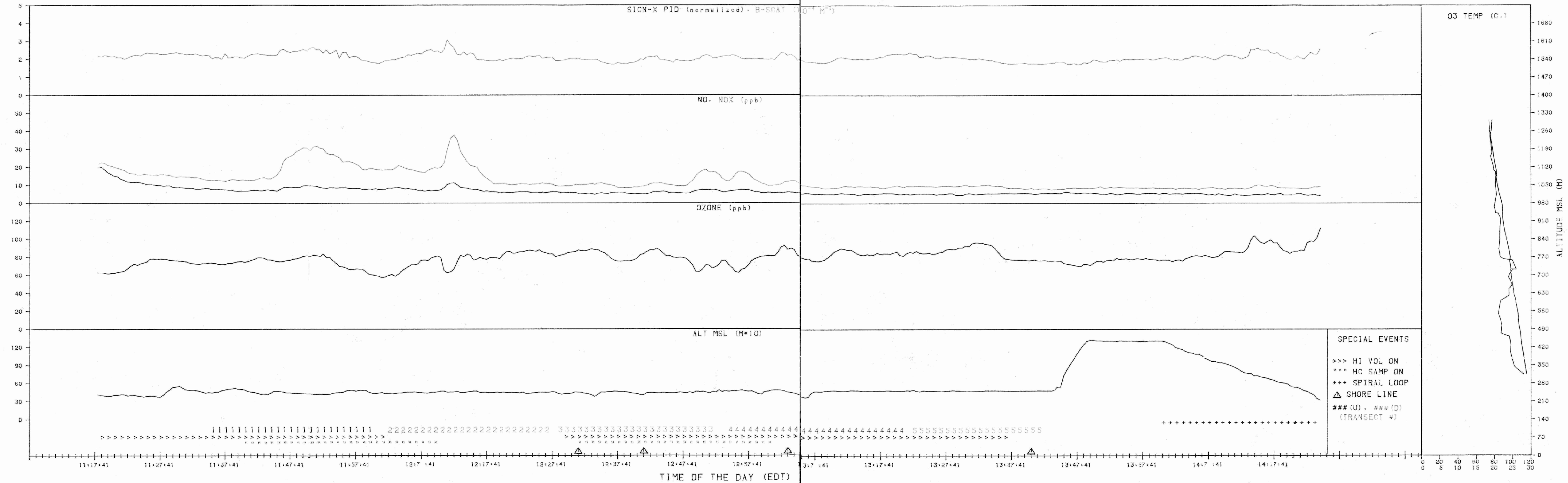


Fig. 11: Same as Fig. 7 but for July 3, 1984
(Flt. 1)

JULY 3, 1984

FLIGHT #2: 16:30 - 19:20 EDT:

Under partly cloudy skies, moderate southwesterly winds prevailed for the rest of the day. The second flight (Figure 12) was undertaken at 16:30. The flight path was very similar to the morning flight. A total of five traverses were flown including one upwind. One HiVol and three HC samples were taken during the downwind traverses.

GENERAL COMMENTS (Refer to Figure 13)

Upwind and downwind ozone levels still differed by about 10-15 ppb. NO/NO_x levels were below 10 ppb except in the generating station plume where NO_x was around 35 ppb. Ozone scavenging in the NO_x plume was quite evident. The upwind light-scattering coefficient (B-scat) was generally higher than the downwind B-Scat. The air temperature was about three degrees higher than during the earlier flight.

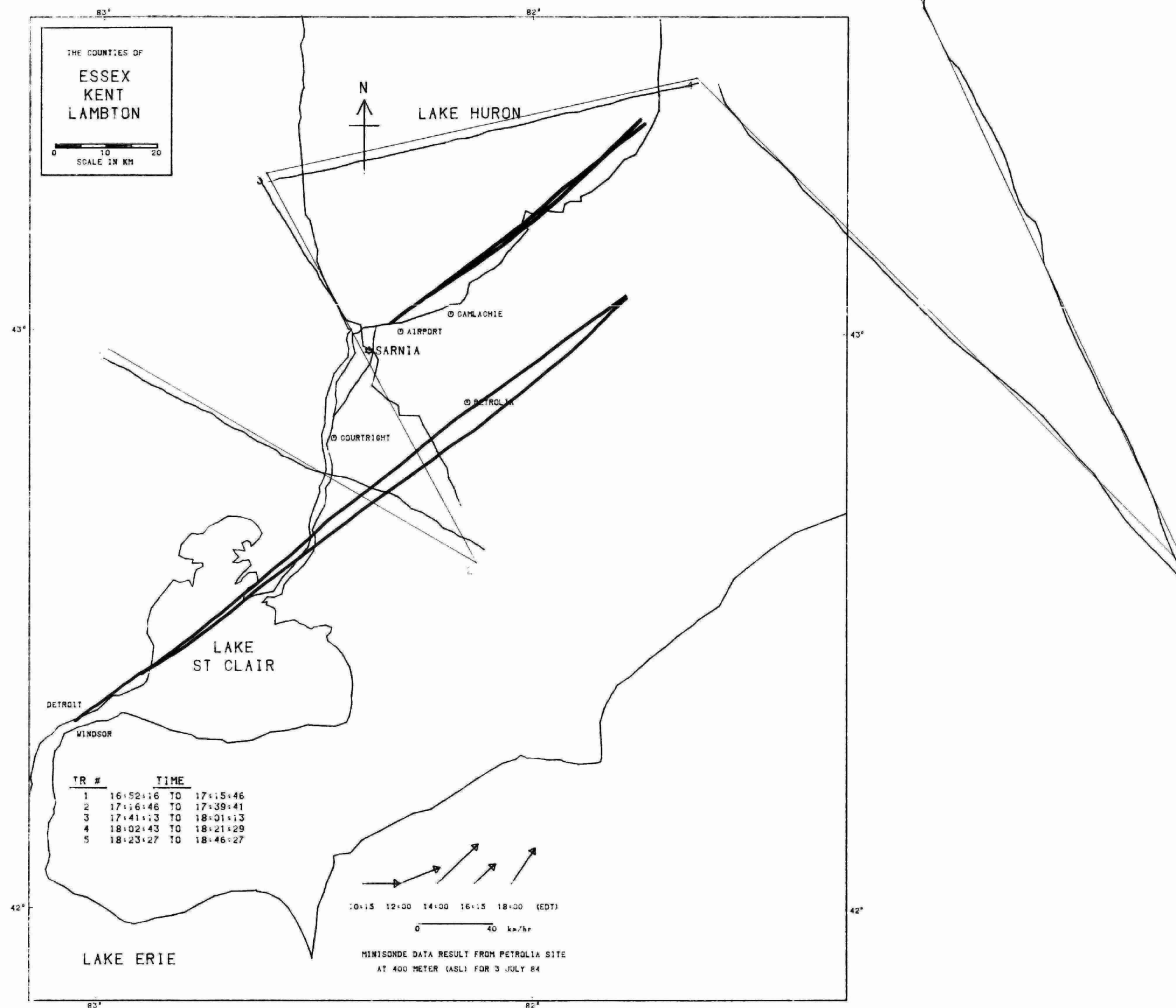


Fig. 12: Same as Fig. 6 but for July 3, 1984
(Flt.2)

AIRCRAFT DATA FOR
03-JULY-84
FLIGHT # 2

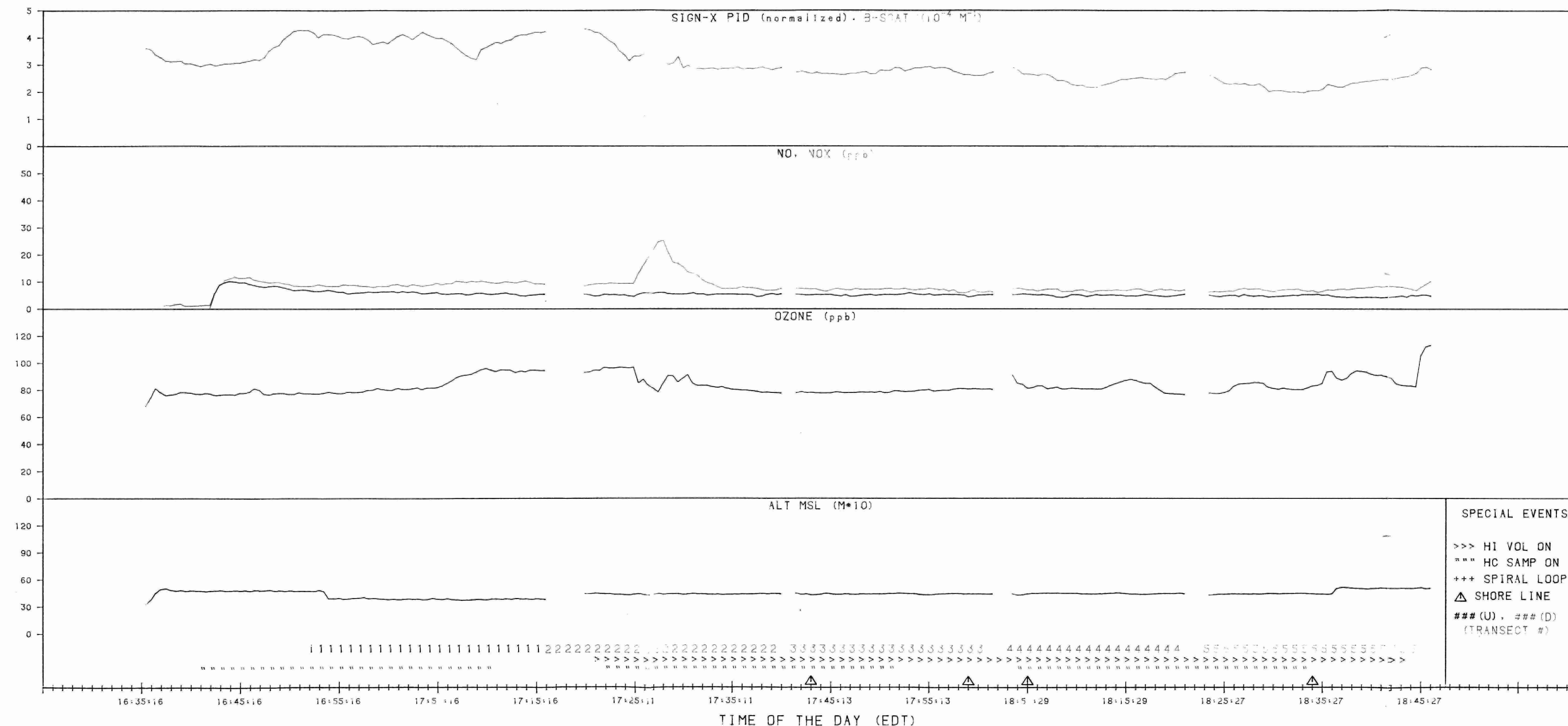


Fig. 13: Same as Fig. 7 but for July 3, 1984
(Flt. 2)

JULY 5, 1984: 10:40 to 14:00 EDT:

Under overcast skies, there was early morning fog which started to lift by 9:00 a.m. Winds were light and variable. At 11:00 a.m. both minisonde stations reported south-southwest winds with speeds around 10 to 15 km/h. Figure 14 shows the flight path. The aircraft took off at 10:43 and the first traverse (upwind) was started at 10:58. Three downwind traverses were completed by 12:45. After the downwind traverses, a spiral was flown at Kettle Point from an altitude of 1100 m MSL down to about 100 m above the lake level. A repeat upwind traverse could not be completed due to rain in the area. The flight was terminated at 14:00. There were no instrument malfunctions except for one disk error which caused about six minutes of data loss.

GENERAL COMMENTS (Refer to Figure 15)

Upwind ozone levels were in the 40 to 50 ppb range and NO/NO_x levels were less than 10 ppb. Downwind, the ozone concentration was in the 40 to 60 ppb range and NO/NO_x concentrations were in the 10 to 20 ppb range. There was a temperature inversion over the lake. Maximum ozone levels coincided with the height of the inversion. Above the inversion ozone levels decreased with an increase in altitude.

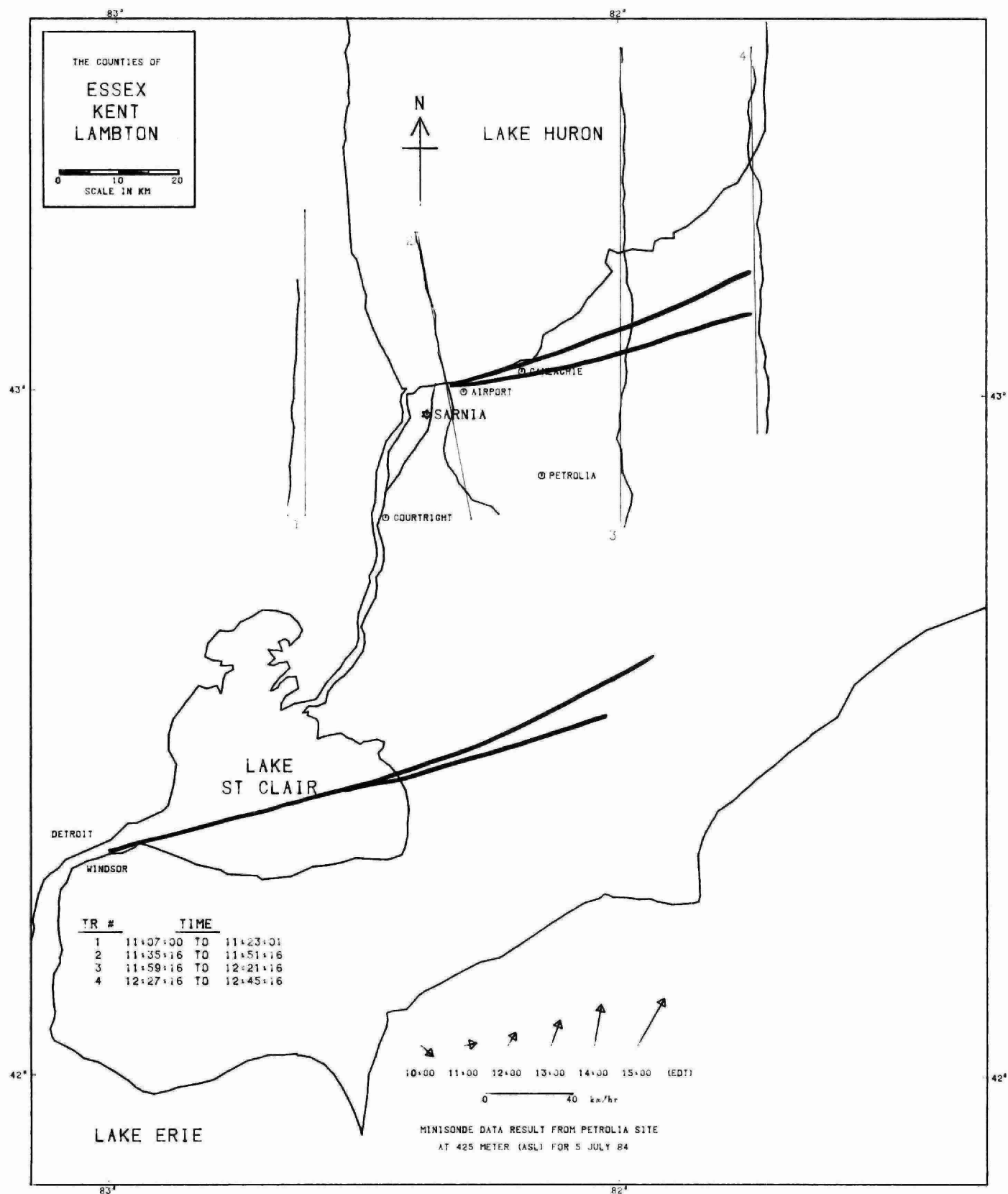


Fig. 14: Same as Fig. 6 but for July 5, 1984

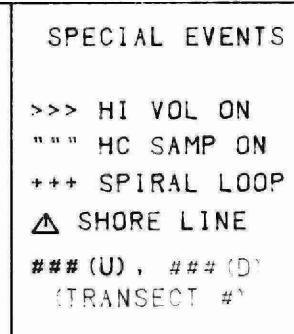


Fig. 15: Same as Fig. 7 but for July 5, 1984

JULY 7, 1984: 09:45 - 14:11 EDT:

Under partially cloudy skies, moderate northwest winds were reported by all three meteorological sites. Figures 16a and b show the flight paths selected. Sampling began with an upwind traverse and was then followed by downwind traverses. Sampling was terminated with a repeat of the upwind traverse. Two HiVol and three HC samples were collected during this flight. There were no instrument malfunctions. A zero check prior to landing showed normal response for the ozone and NO/NO_x monitors. The flight was terminated at 14:11.

GENERAL COMMENTS (Refer to Figure 17)

Ozone and NO/NO_x levels were low and almost uniform over the entire flight path. No plumes of any kind were detected.

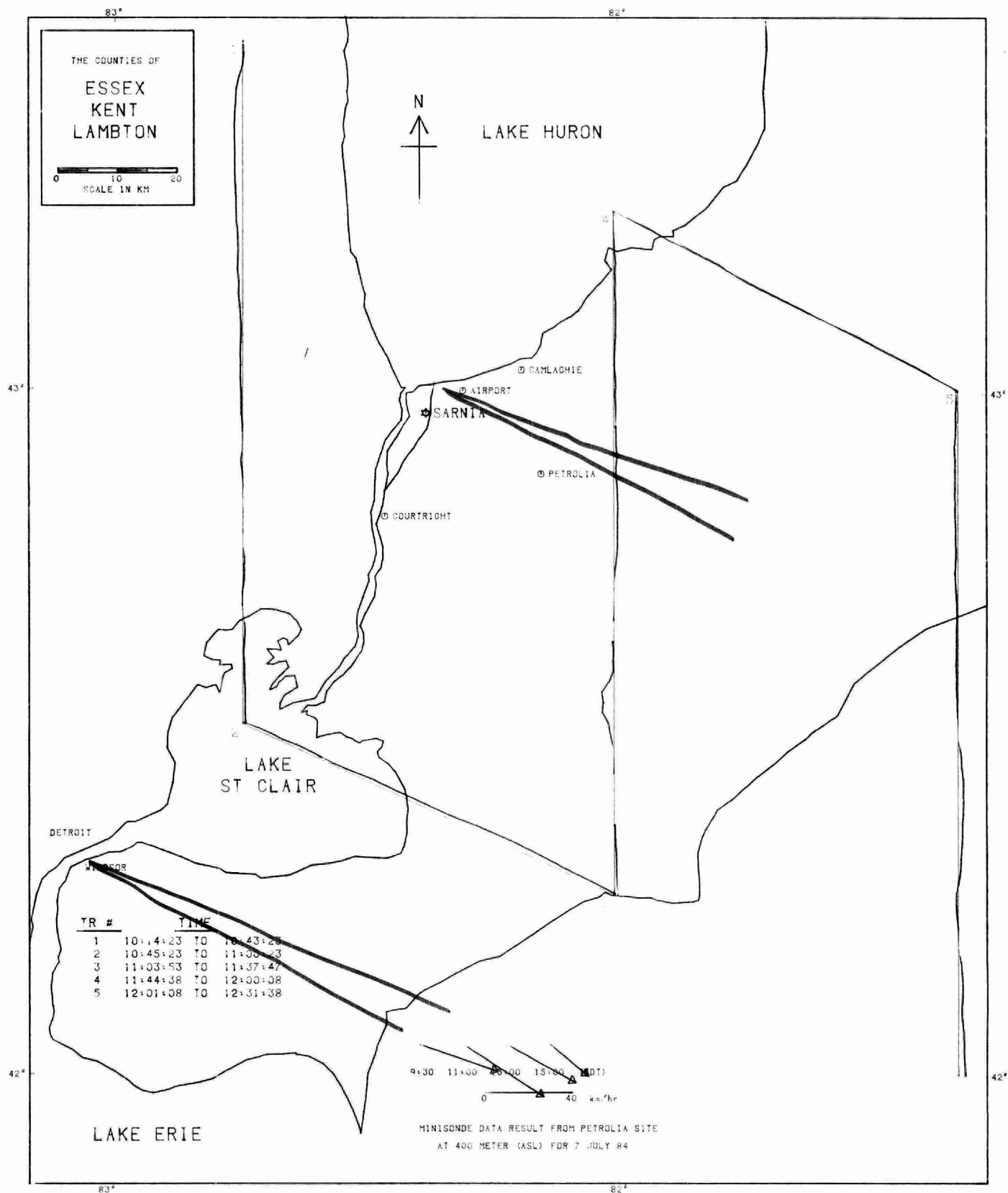


Fig. 16: Same as Fig. 6 but for July 7, 1984

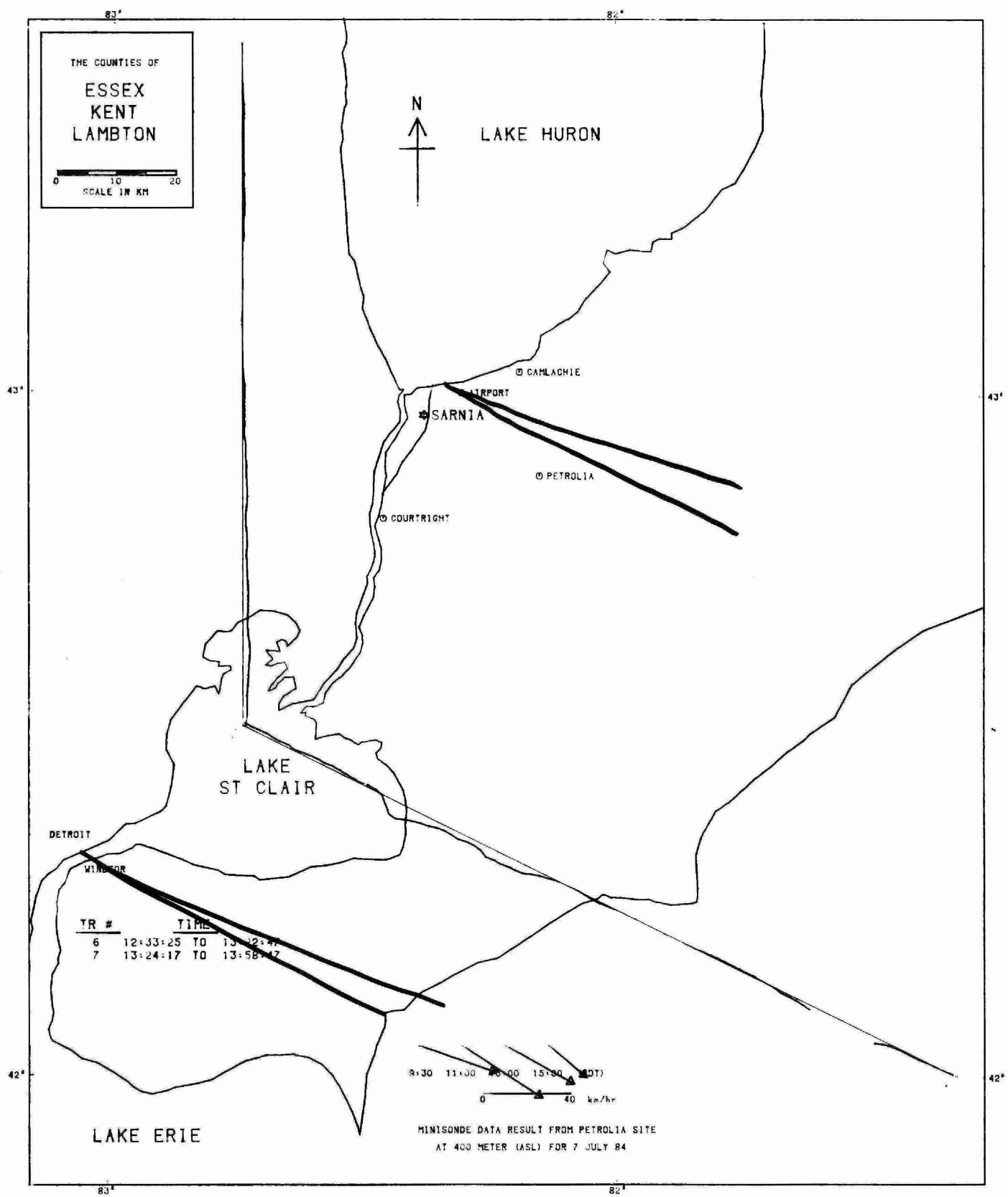


Fig. 16 - contd.

AIRCRAFT DATA FOR
07-JULY-84 :

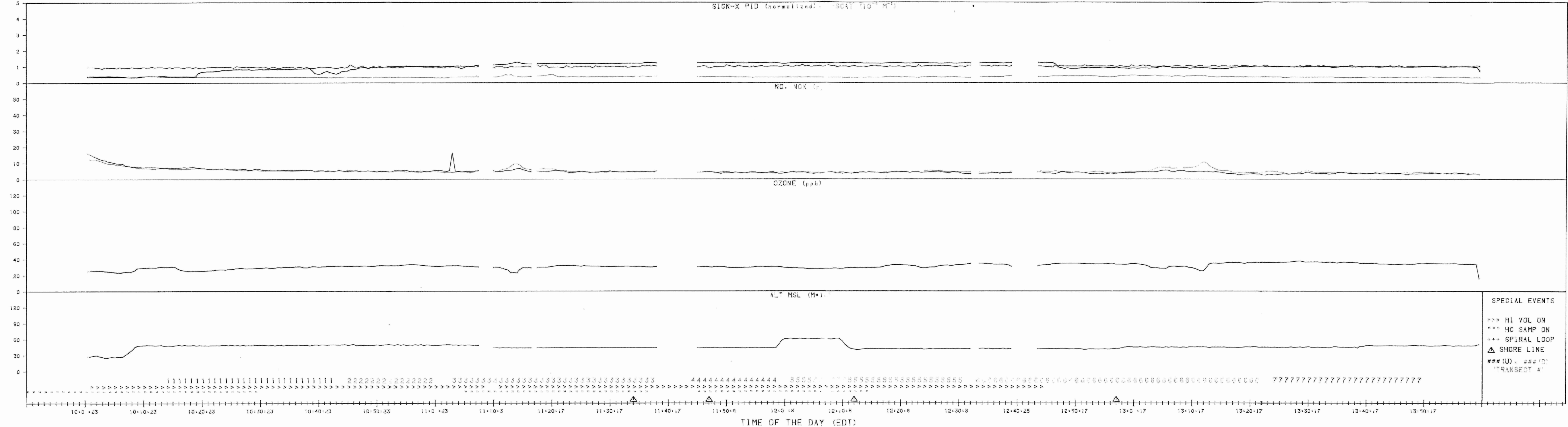


Fig. 17: Same as Fig. 7 but for July 7, 1984

JULY 8, 1984

FLIGHT #1: 09:00 - 12:05 EDT:

Under mostly sunny skies, winds were light and variable. Upper level winds showed a westerly component. Originally it was decided to fly a saw tooth pattern at a constant altitude east of Sarnia. During the flight a brown plume southeast of Sarnia was observed. In order to sample this plume, the flight path was altered. Figures 18a,b and c show the resulting flight path. No upwind traverse was flown on this flight. One HiVol and two HC samples were collected. There were no instrument malfunctions and the zero check was normal. The flight was terminated at 12:05.

GENERAL COMMENTS (Refer to Figure 19)

The first traverse east of Sarnia, showed elevated ozone levels downwind of Sarnia. The second traverse further east however did not show similar ozone levels. Southeast of Sarnia, elevated NO/NO_x levels were observed but no ozone plume could be detected.

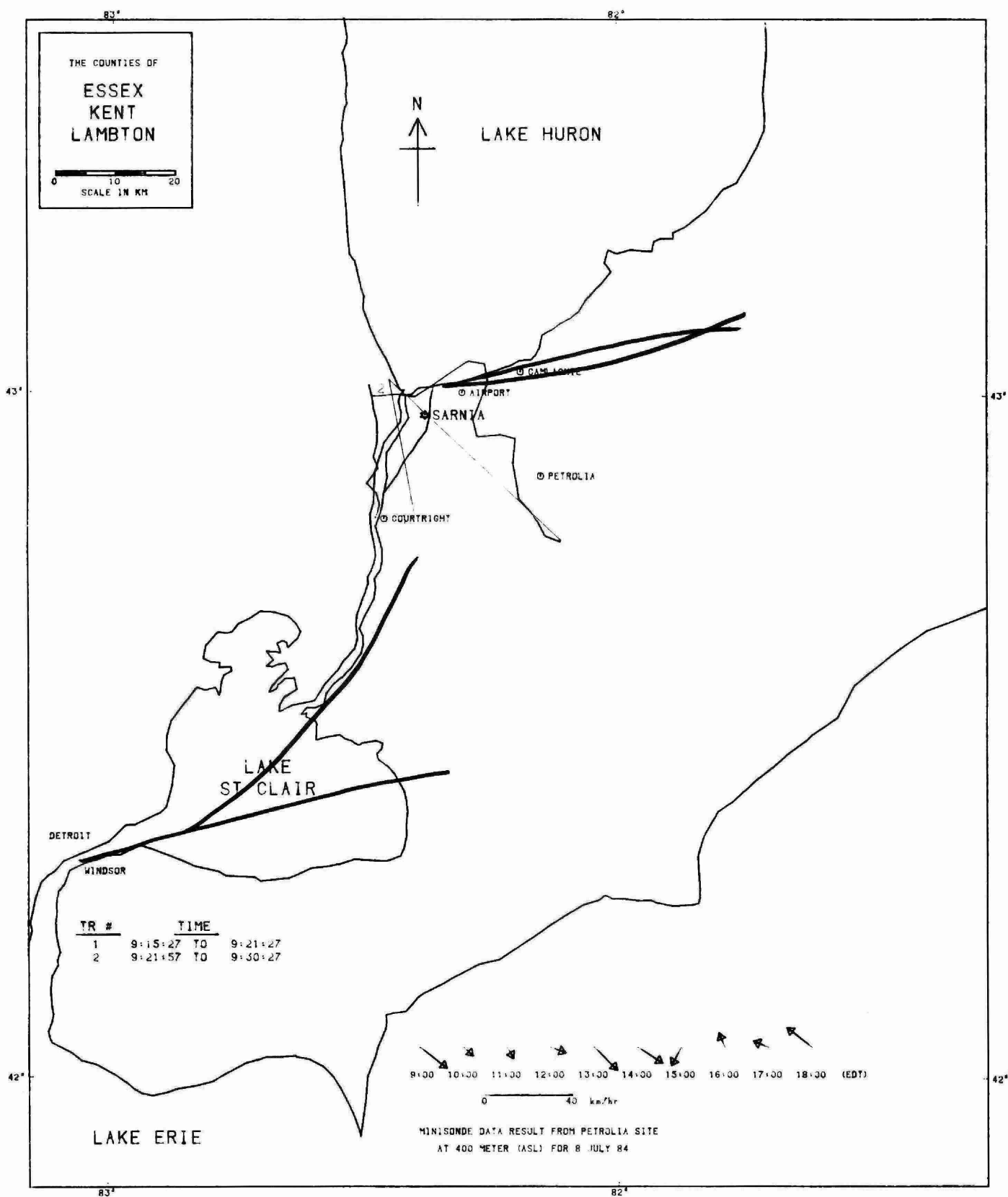


Fig. 18: Same as Fig. 6 but for July 8, 1984
(Flt. 1)

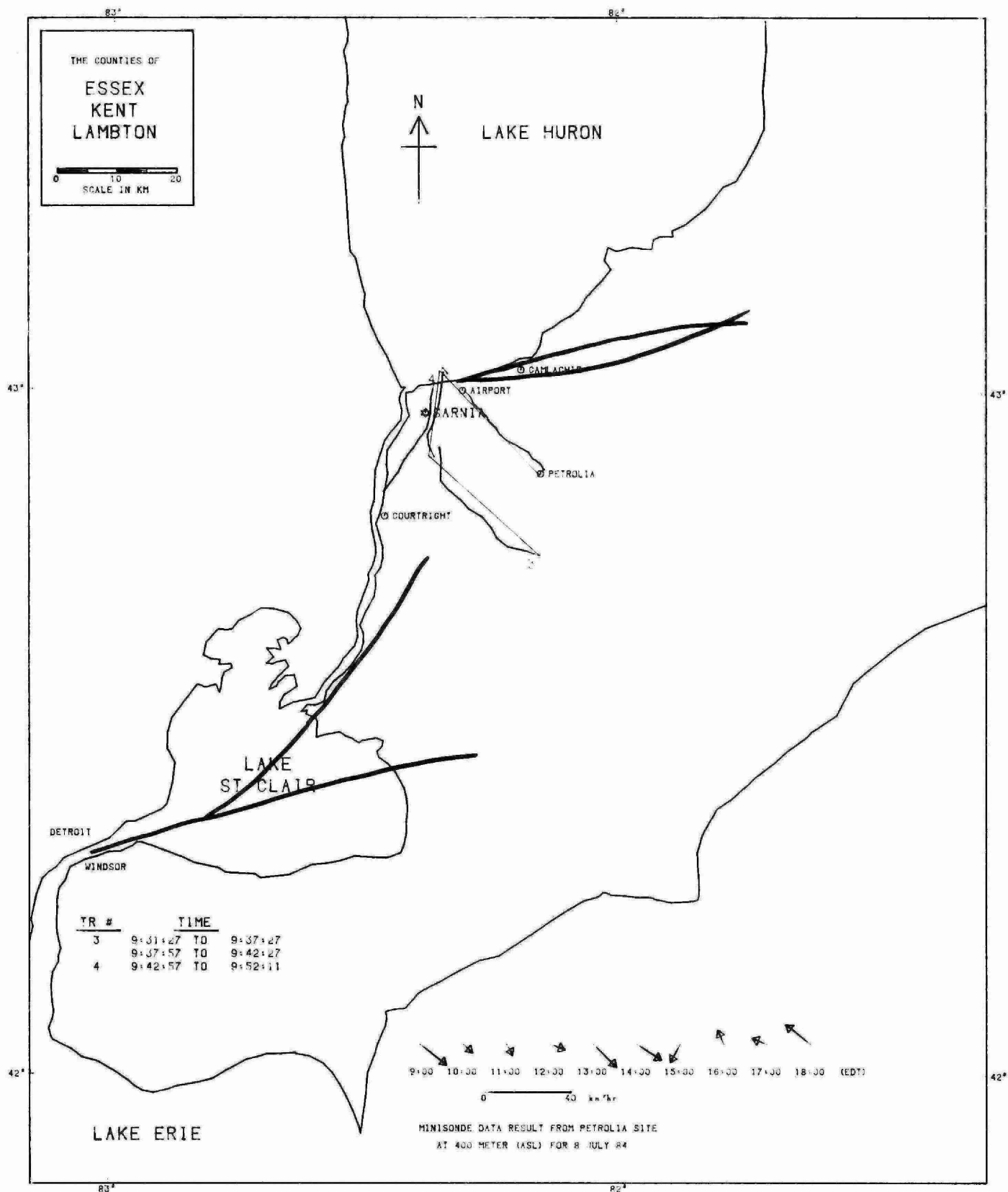


Fig.:18 contd.

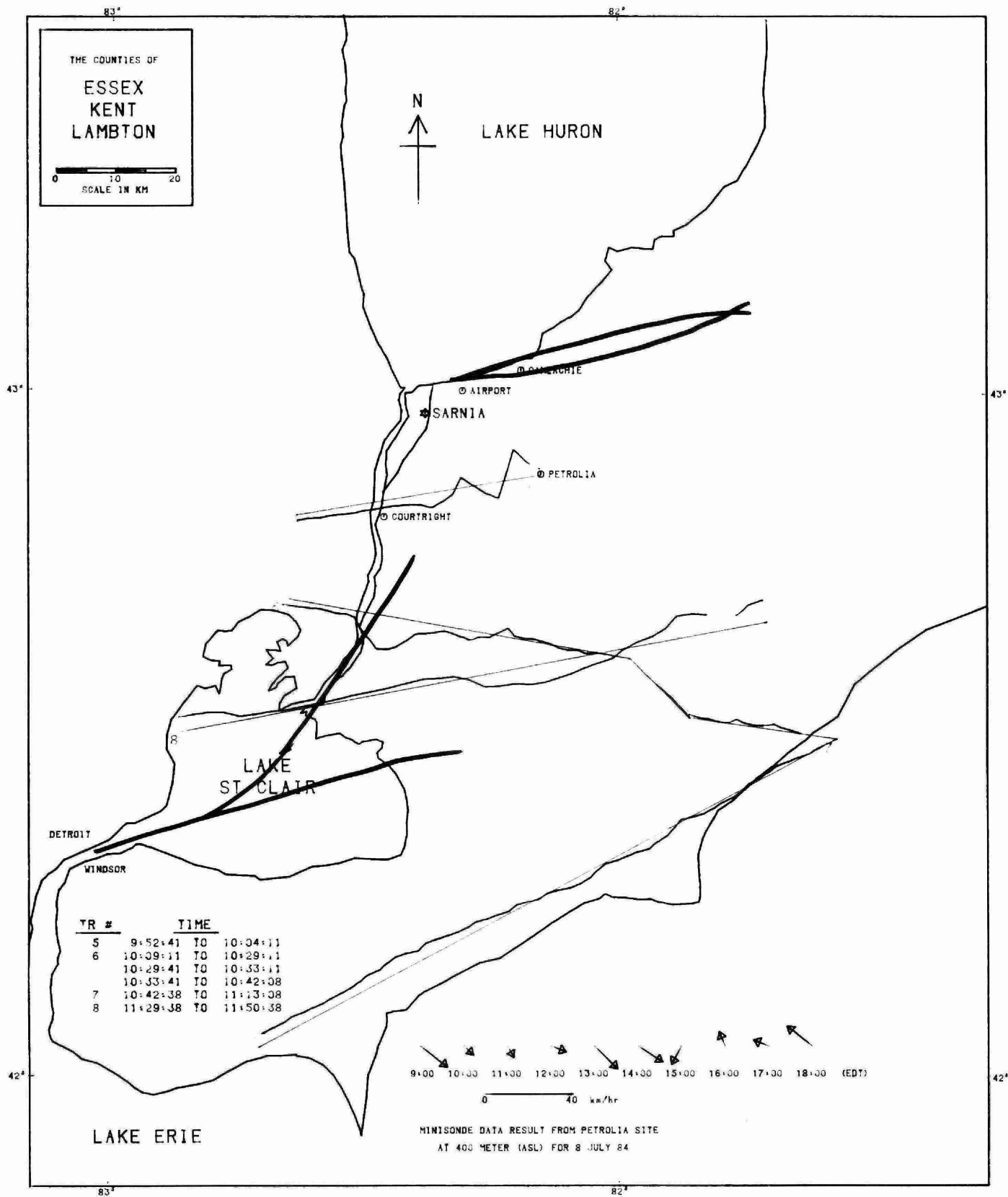
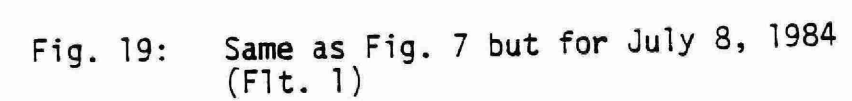


Fig.:18 contd.

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JULY 8, 1984

FLIGHT #2: 16:00 - 18:30 EDT:

Late in the afternoon, the winds shifted to the southwest but continued to be light. Several transects northeast of Sarnia were flown. HiVol and HC samples were taken upwind and downwind of Sarnia (Figures 20a, b, and c). Circular traverses were made over Sarnia at different altitudes. Due to disk problems a total of about 30 minutes of data were lost. All monitors functioned normally. The flight was terminated 18:30.

GENERAL COMMENTS (Refer to Figure 21)

Elevated ozone levels were observed northeast of Sarnia. Circular traverses over Sarnia showed different ozone levels between the east and west side of the city.

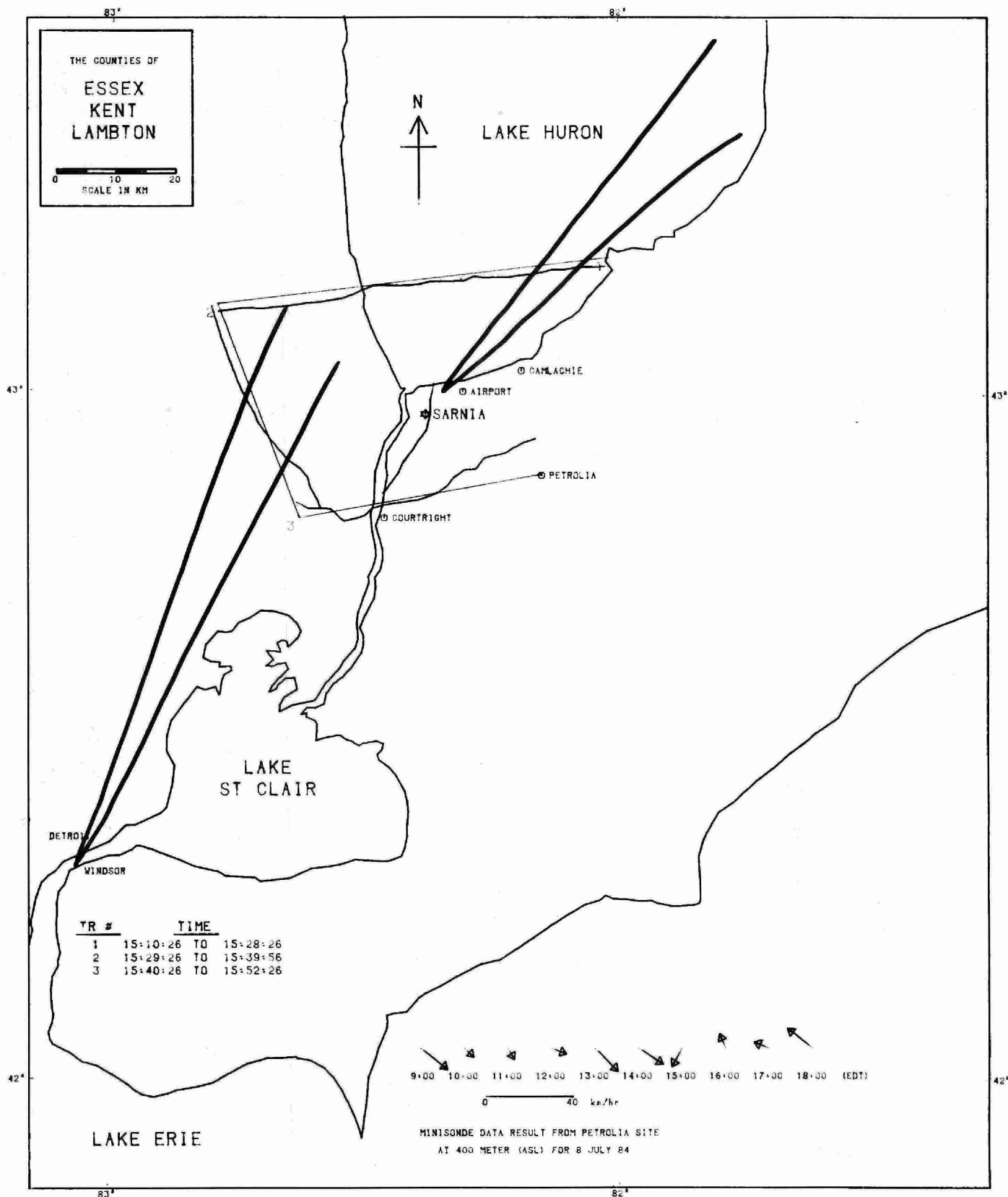


Fig. 20: Same as Fig. 6 but for July 8, 1984 (Flt. 2)

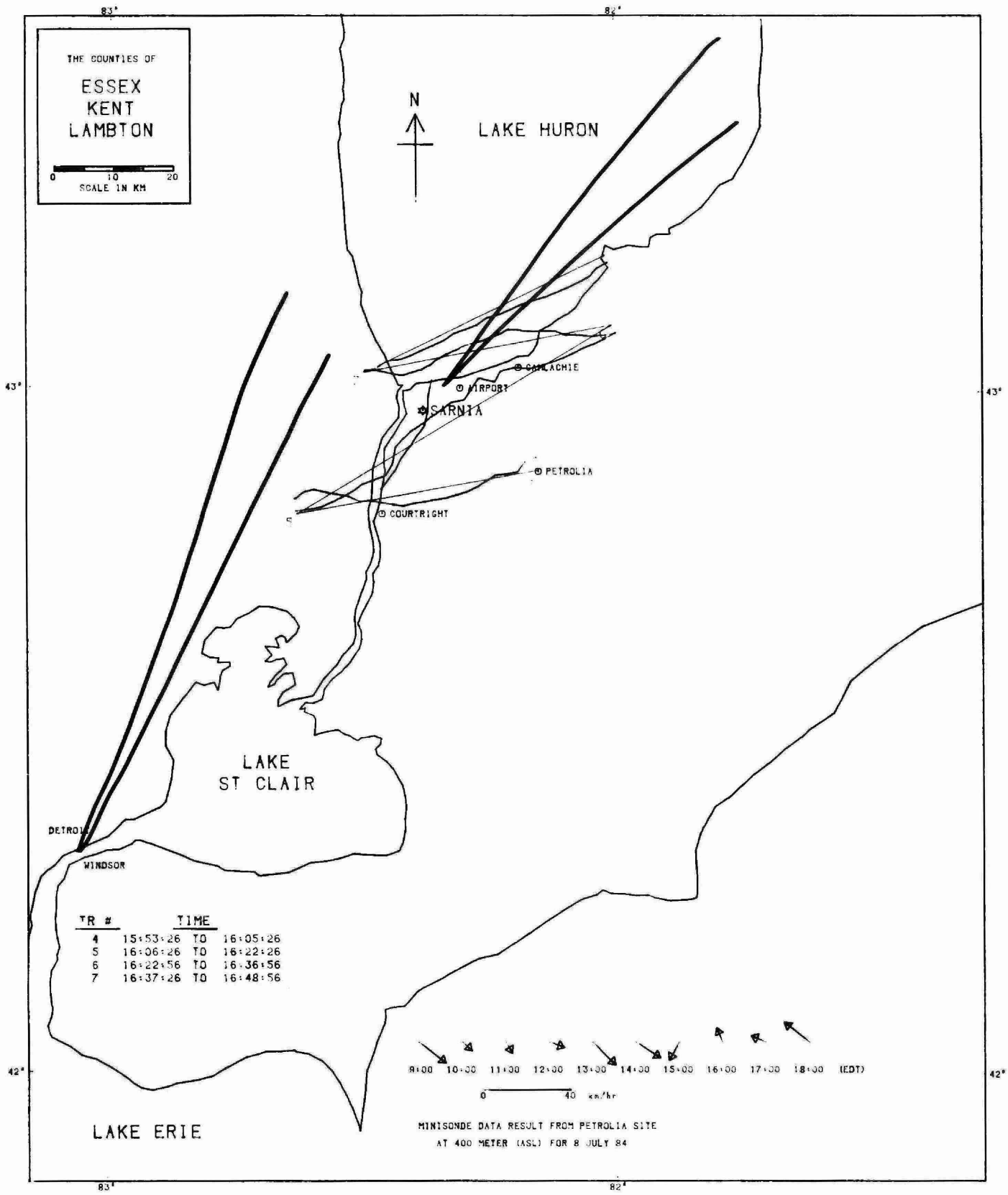


Fig.: 20 contd.

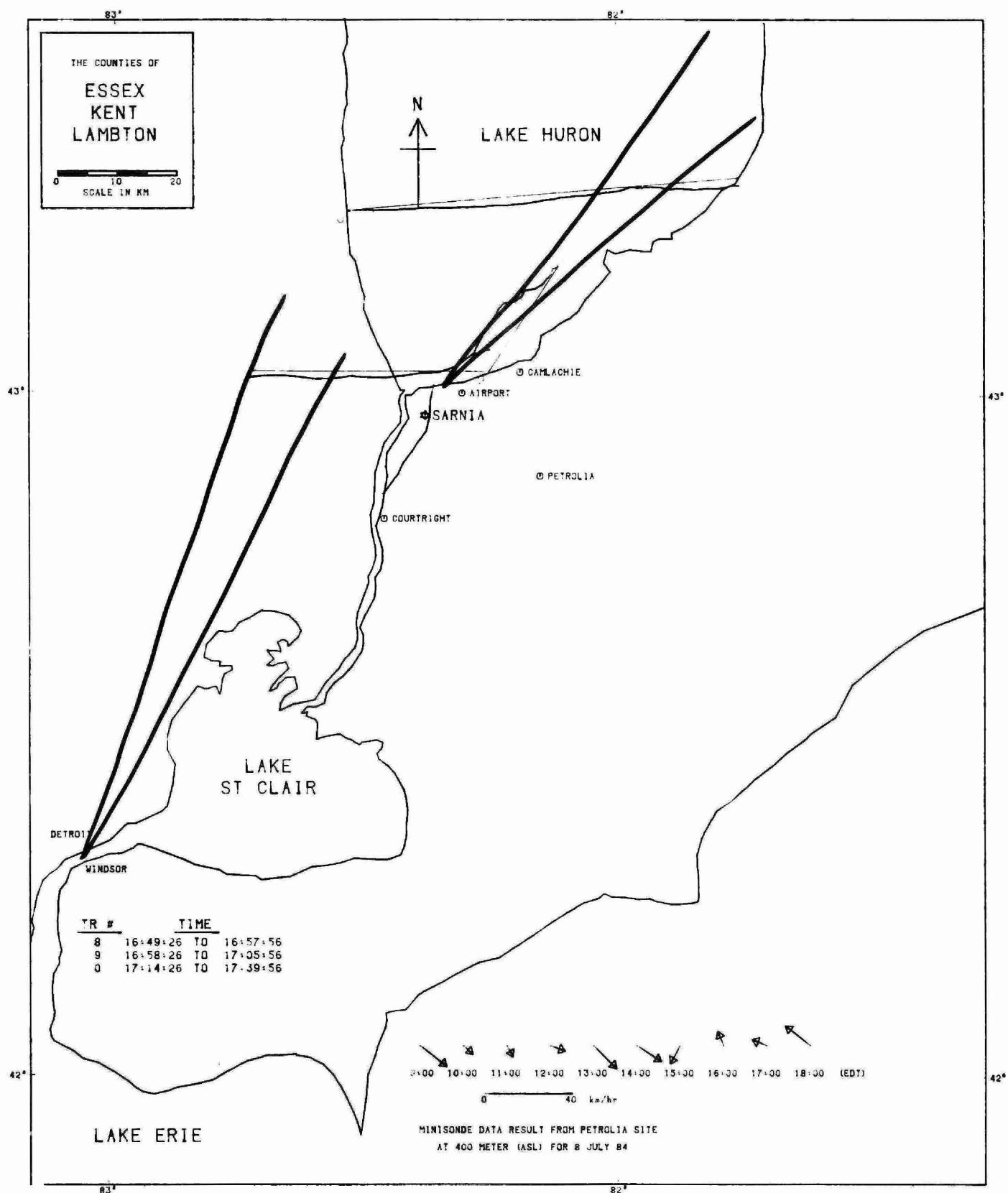


Fig.: 20 contd.

AIRCRAFT DATA FOR
08-JULY-84
FLIGHT # 2

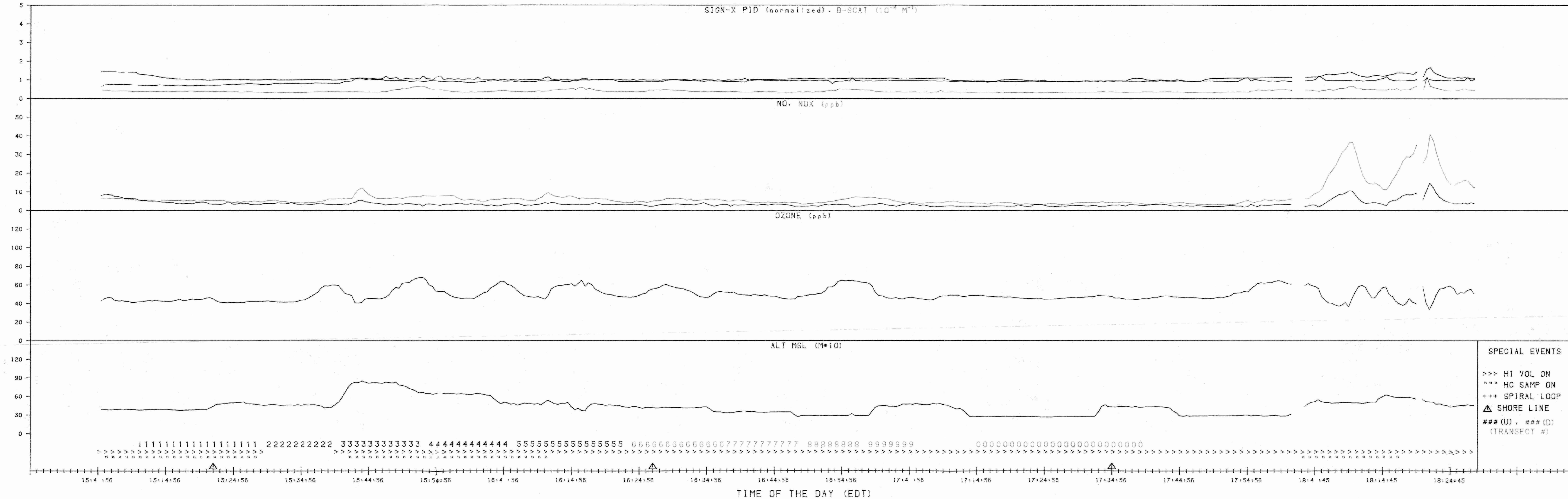


Fig. 21: Same as Fig. 7 but for July 8, 1984
(Flt. 2)

JULY 13, 1984

FLIGHT #1: 09:24 - 13:49 EDT:

Under clear skies, light to moderate southwest winds were observed at all three meteorological sites. Figures 22a and b show the flight path. The air temperature at cruising level was in the 30's. Brown plumes were visible east of Sarnia. One HiVol and one HC sample were collected during the upwind traverse, and one Hi Vol and two HC samples were collected during the downwind traverses. In flight, all instruments functioned normally. However, due to a very hard landing, the DART malfunctioned and because of a CPU error, all the data on the disk were lost. Only ozone data were available from the backup recorder charts. The flight was terminated at 13:49.

GENERAL COMMENTS (Refer to Figure 23)

Elevated ozone levels were observed east of Sarnia. Ozone depletion due to a NO/NO_x plume was quite evident along the shoreline. Further east, plumes apparently from the Detroit area were also observed.

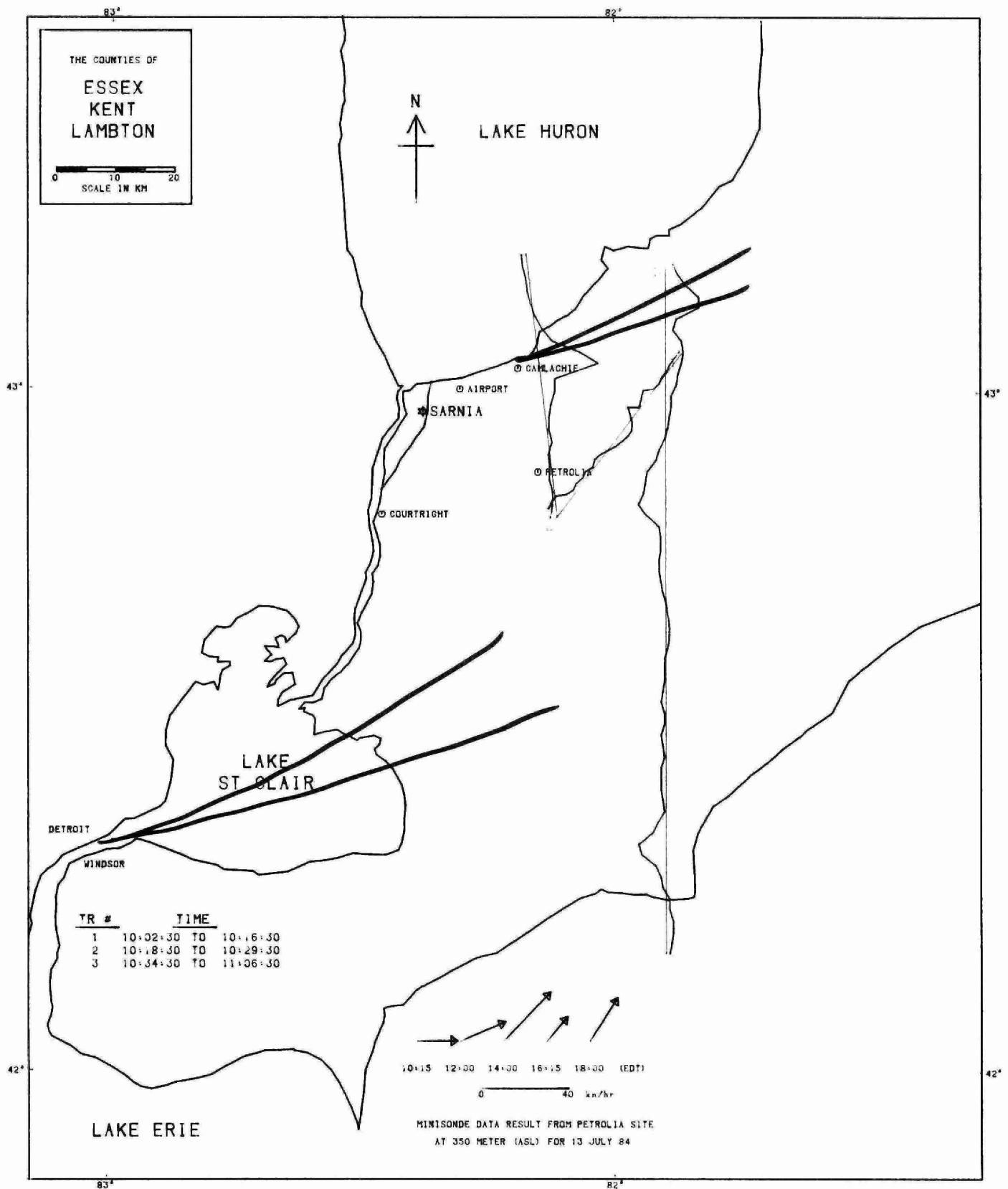


Fig. 22: Same as Fig. 6 but for July 13, 1984
(Flt. 1)

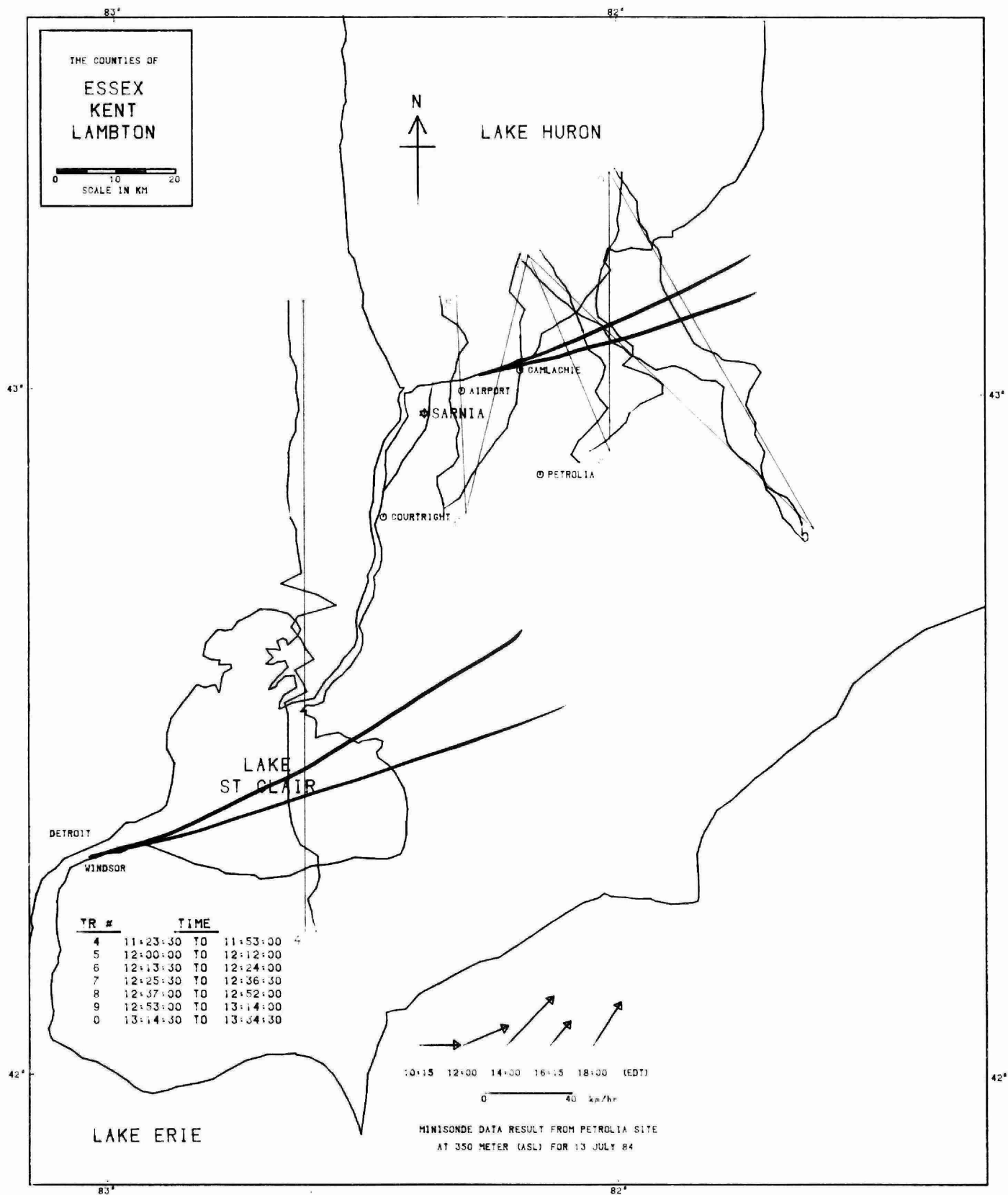
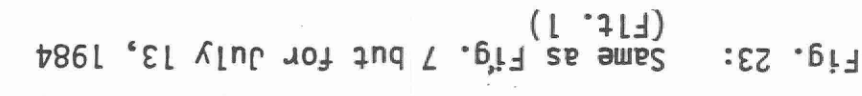


Fig. 22 contd.

(q d d) XON 'ON

ENCLOSURE (p p)

LT SW 17 (M*10)



```
SPECIAL EVENTS
>>> HI VOL ON
      HC SAMP ON
      +++ SPIRAL LOOP
      Δ SHORE LINE
      ### (U) , ### (D)
      (TRANSECT #)
```

JULY 13, 1984

FLIGHT #2: 16:35 - 18:34 EDT:

Light to moderate southwesterly winds continued throughout the afternoon. The second flight of the day started at 16:35 and lasted till 18:34. Figure 24 shows the flight path. A spiral was flown near Kettle Point from about 700 m MSL down to about 375 m MSL. No HiVol or HC samples were collected during this flight.

GENERAL COMMENTS (Refer to Figure 25)

Elevated ozone levels along the shoreline, and ozone depletion due to NO/NO_x was observed. The spiral did not show any significant structuring of the ozone in the vertical.

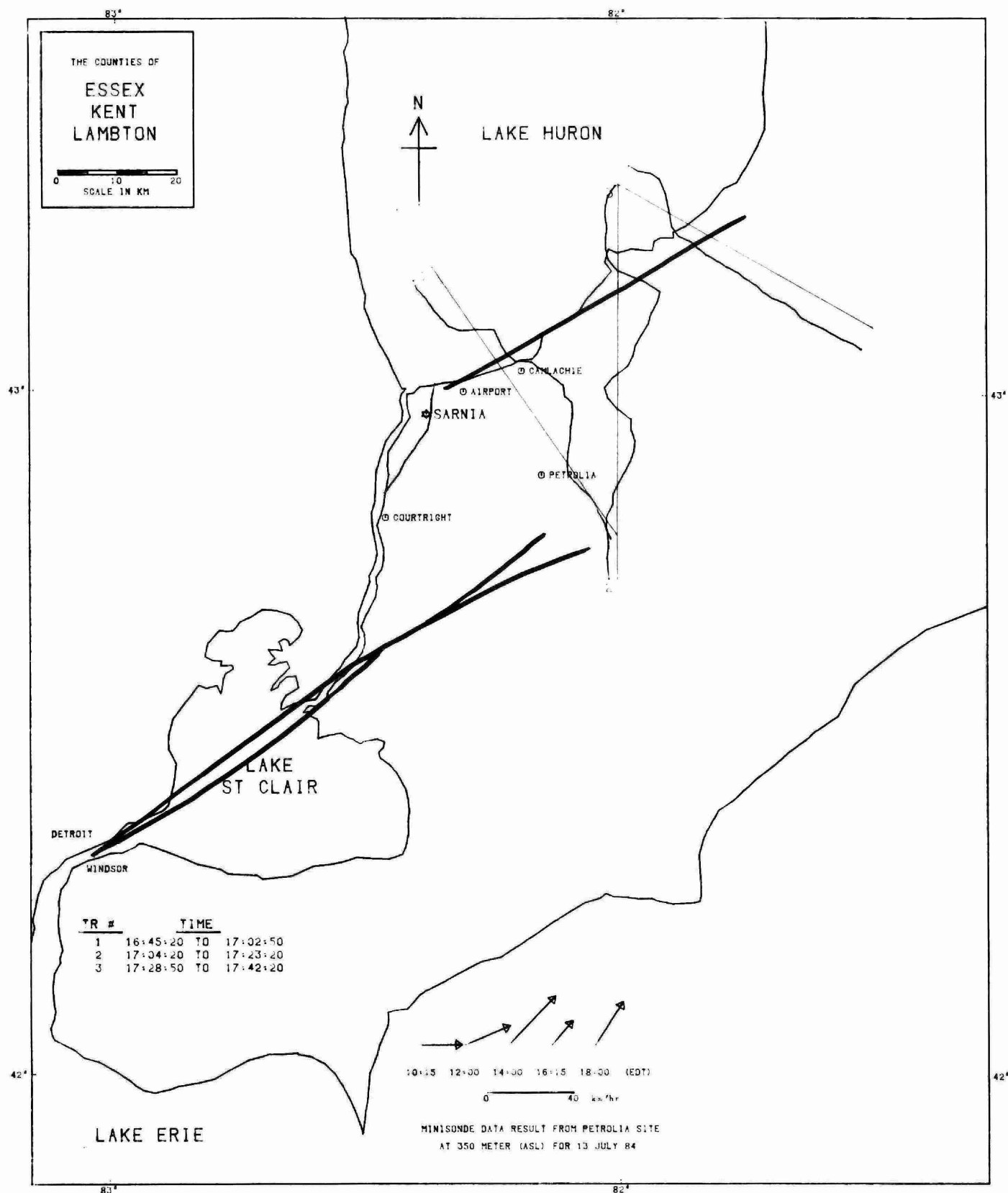


Fig. 24: Same as Fig. 6 but for July 13, 1984 (Flt. 2)

AIRCRAFT DATA FOR
13-JULY-84
FLIGHT # 2

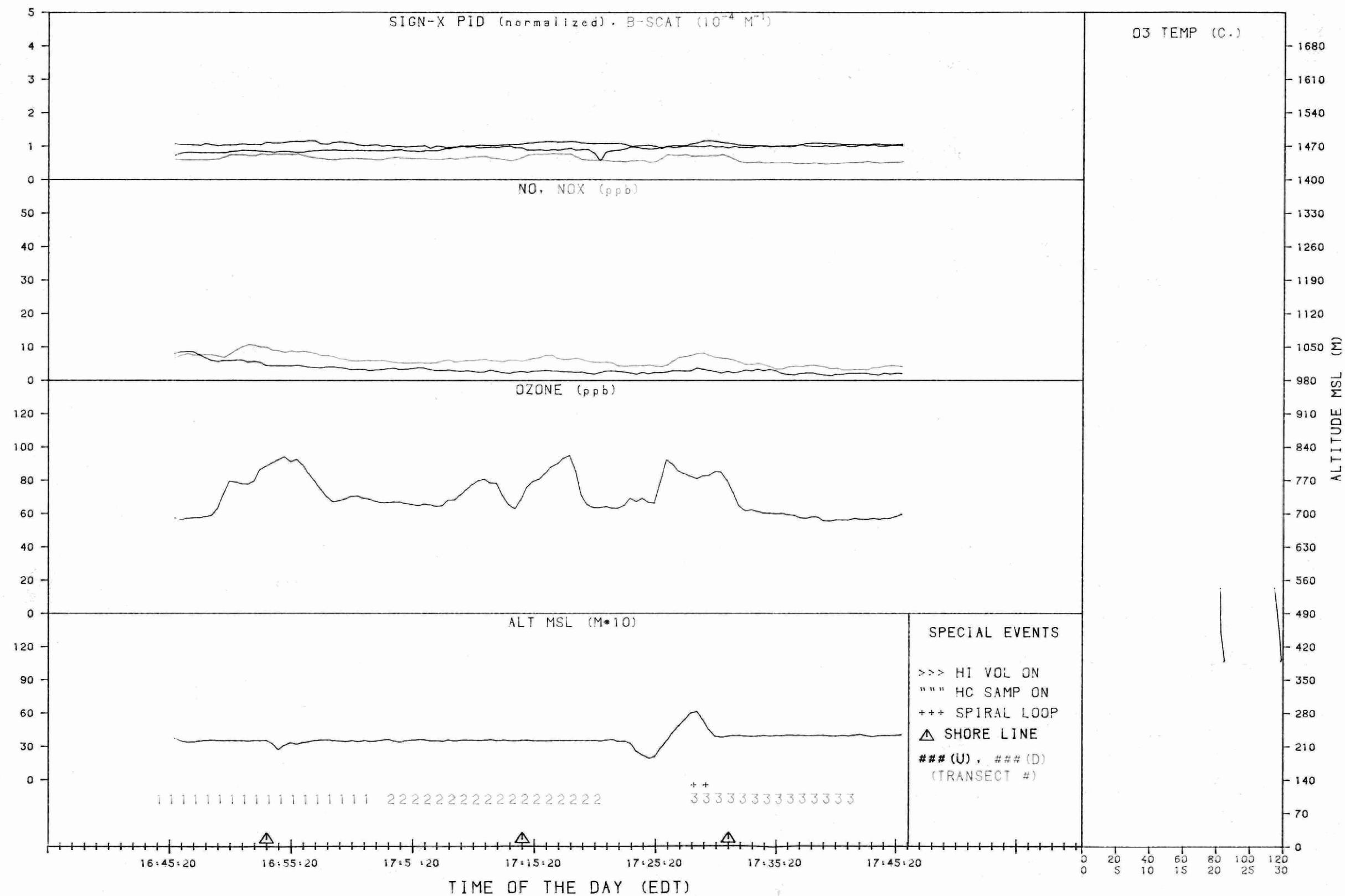


Fig. 25: Same as Fig. 7 but for July 13, 1984
(Flt. 2)

JULY 14, 1984, 09:00 - 12:20 EDT:

Visibility was poor due to early morning fog. By 9:00 am. the fog started to lift and the visibility improved. All three meteorological sites reported light southwesterly winds. Figures 26a and b show the flight plan. The flight commenced at 9:00 a.m. and terminated at 12:20. One HiVol and one HC sample were collected during the upwind traverse and one HiVol and two HC samples during the downwind traverses. A brown plume was visible southeast of Sarnia. A spiral was flown near Kettle Point. There were no instrument malfunctions and the zero check was normal.

GENERAL COMMENTS (Refer to Figure 27)

Overall, the ozone levels were relatively high. A slight increase of about 10 ppb could be observed downwind of Sarnia. NO/NO_x plumes from Sarnia were very prominent. A NO/NO_x plume from the Detroit area could also be discerned. The spiral near Kettle Point showed an ozone bulge between 300 and 500 m MSL.

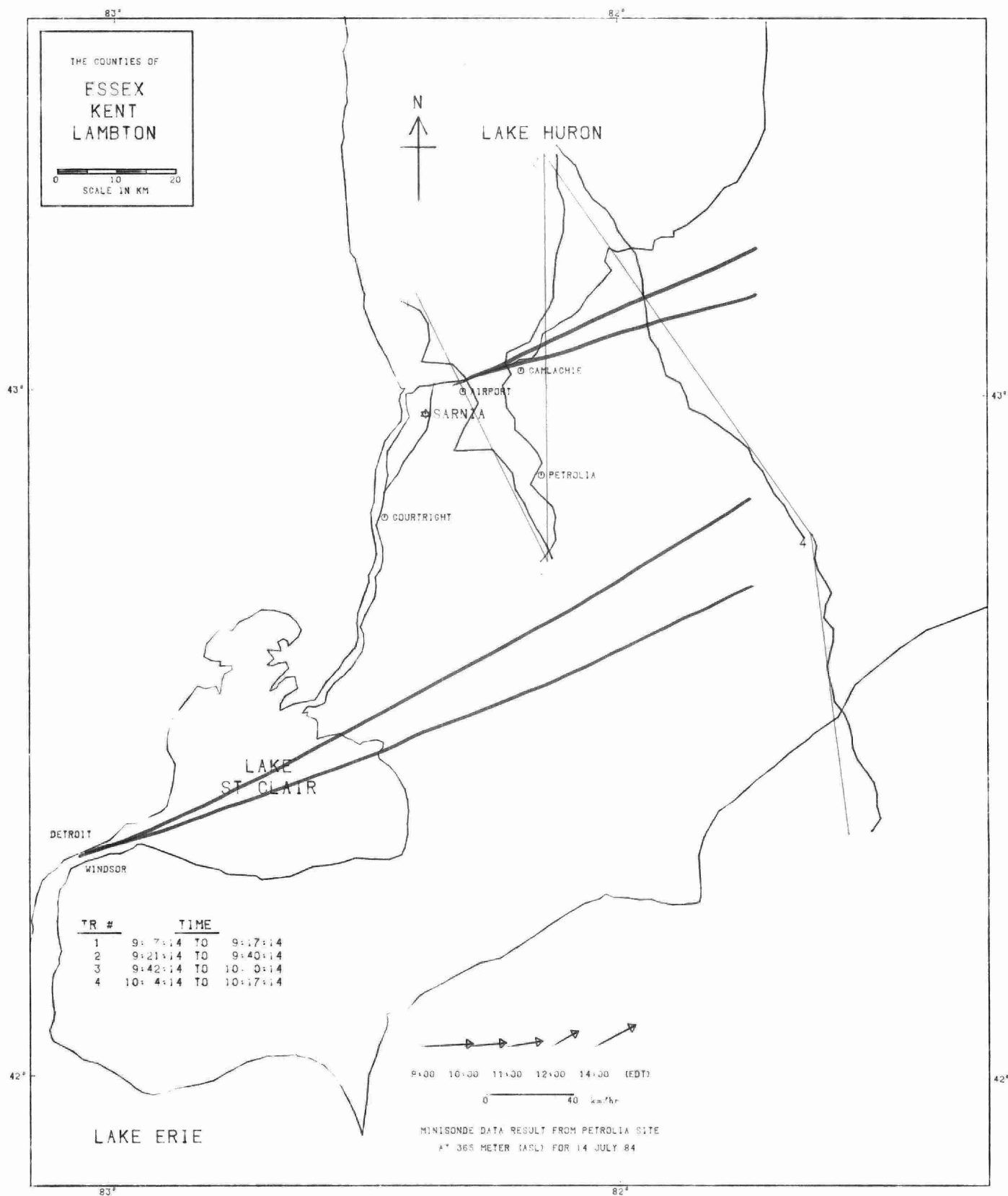


Fig. 26: Same as Fig. 6 but for July 14, 1984

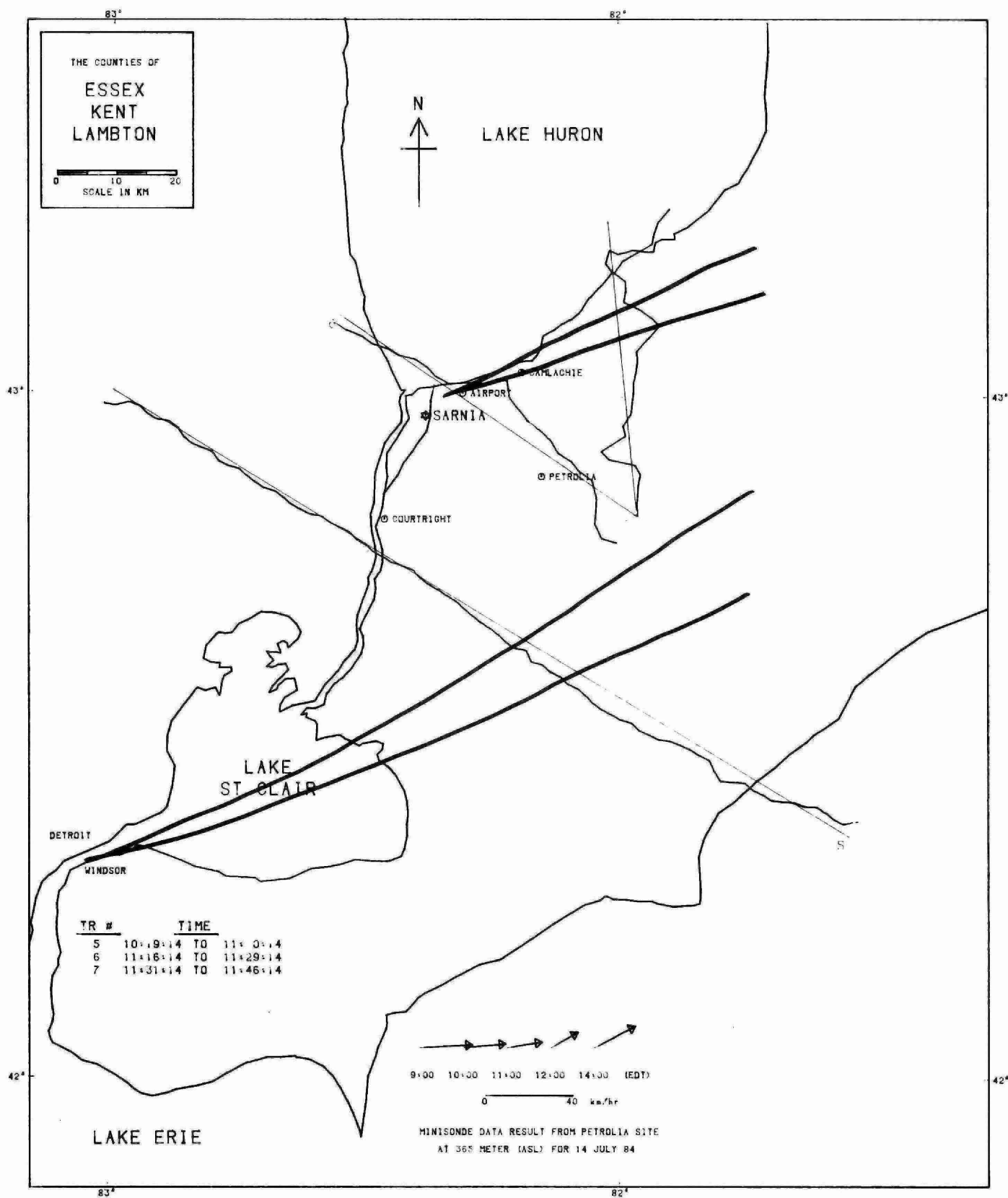


Fig. 26 contd.

AIRCRAFT DATA FOR
14-JULY-84

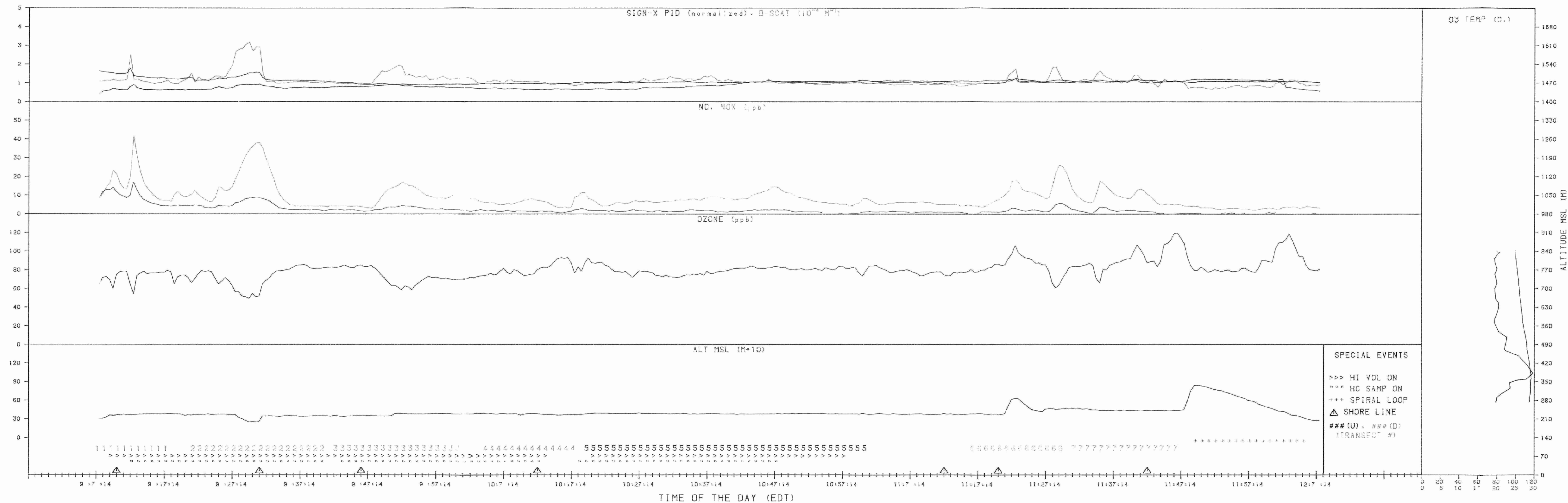


Fig. 27: Same as Fig. 7 but for July 14, 1984

JULY 16, 1984, 09:30 - 13:10 EDT:

Under clear skies, strong westerly winds were reported by all three meteorological sites. Figures 28a and b show the flight path selected. An upwind transect was flown first. One Hi Vol and one HC sample were collected during this transect. One Hi Vol and three HC samples were collected during downwind traverses. There were about 5 disk errors which accounted for approximately 30 minutes of data loss. A spiral was flown near the town of Watford. The flight was terminated at 13:10.

GENERAL COMMENTS (Refer to Figure 29)

Ozone levels were low (50 ppb) and fairly uniform over the sampled area. NO/NO_x plumes were observed downwind of Sarnia. The spiral over Watford did not show any ozone stratification in the vertical.

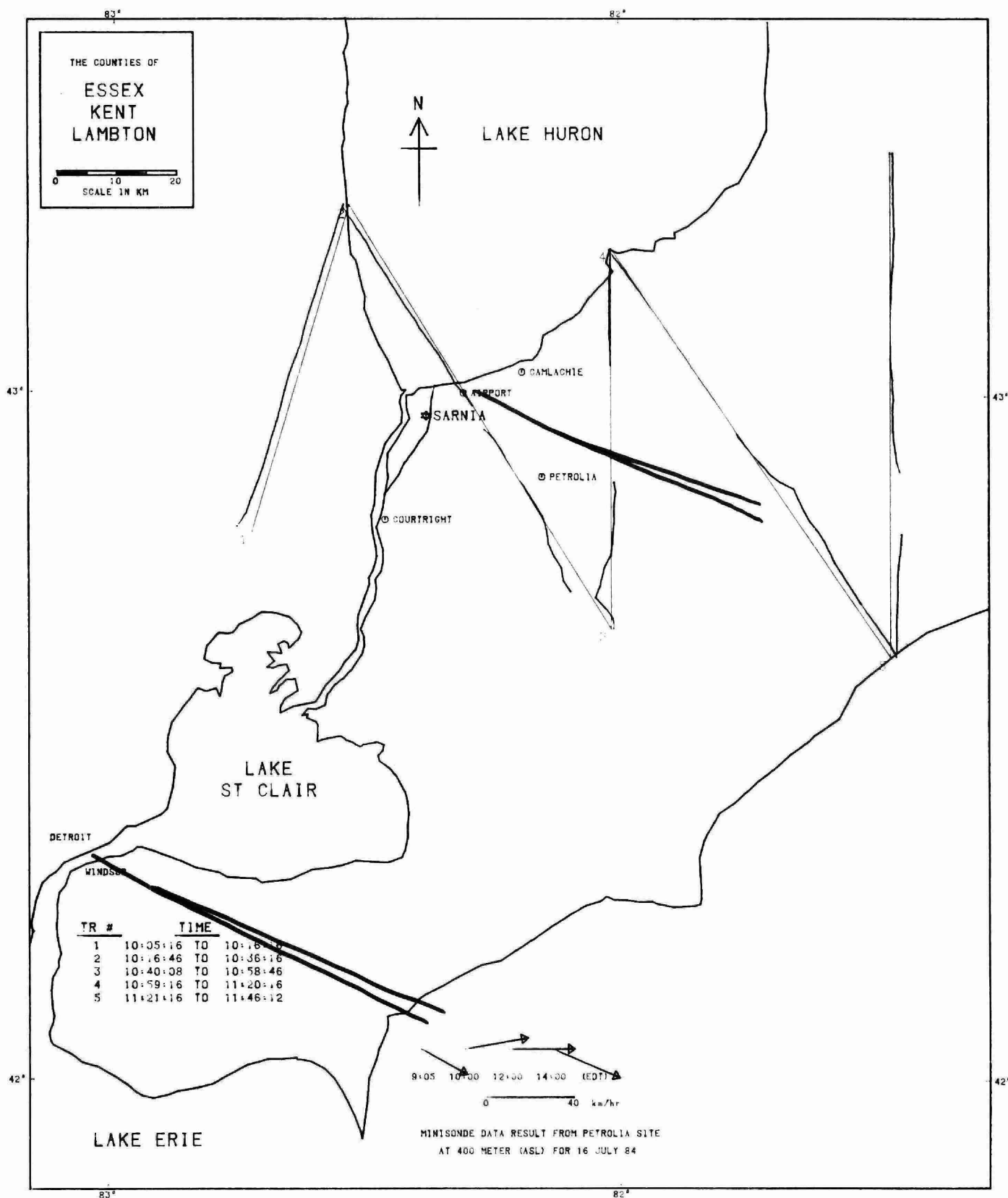


Fig. 28: Same as Fig. 6 but for July 16, 1984

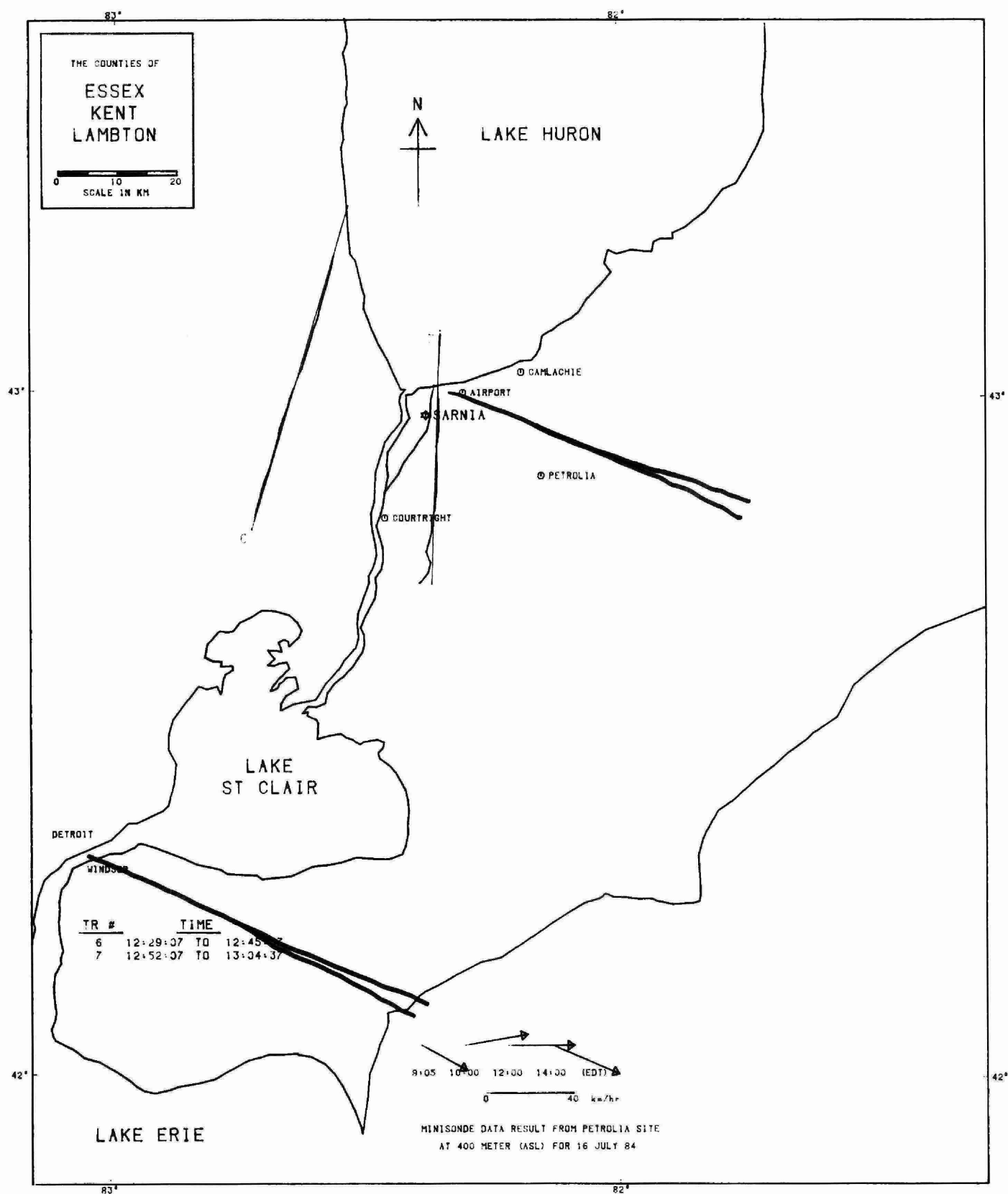


Fig. 28 contd.

AIRCRAFT DATA FOR
16-JULY-84

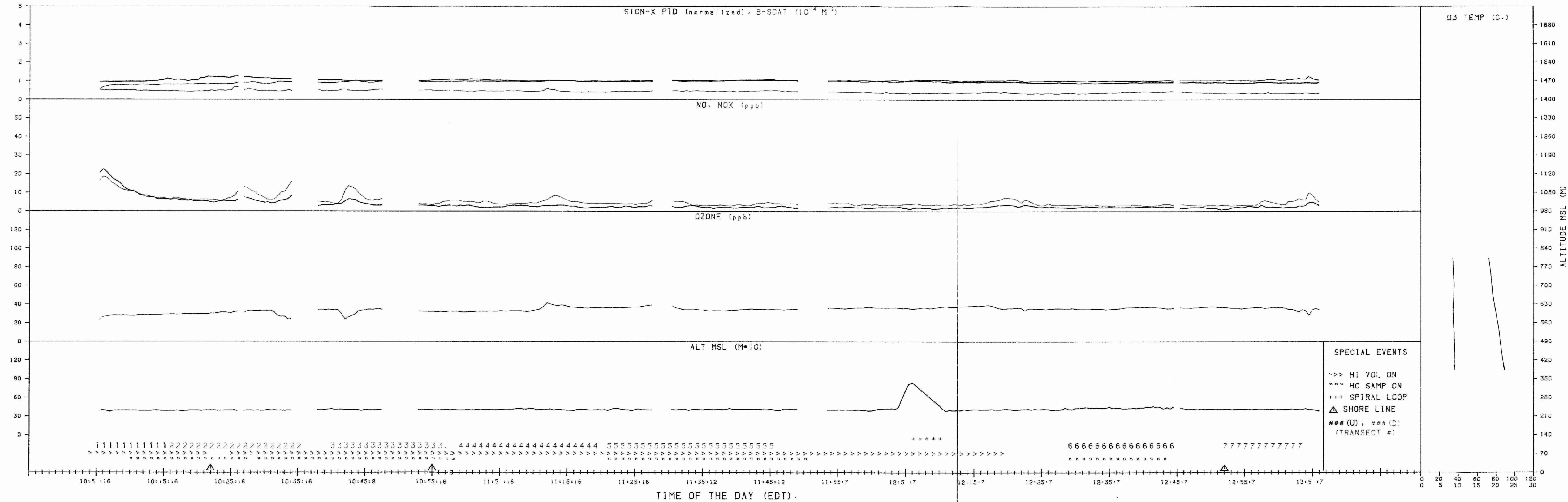


Fig. 29: Same as Fig. 7 but for July 16, 1984

JULY 17, 1984, 08:51 - 11:05 EDT:

Under partly cloudy skies, winds were moderate and from the southwest. Figures 30a and b show the selected flight path. No Hi Vol samples were taken, but three HC samples, one upwind, one over Sarnia and one downwind, were collected. Two spirals were flown, one over Kettle Point and one over Sarnia. There were no instrument malfunctions except for some disk errors, which accounted for about 4 minutes of lost data. Instruments were checked for zero drift and were found to be operating normally.

GENERAL COMMENTS (Refer to Figure 31)

All the transects were close to Sarnia. NO/NO_x plumes from the generating stations were very prominent. A difference of about 5 to 10 ppb in ozone levels could be detected between the west and east side of the refineries.

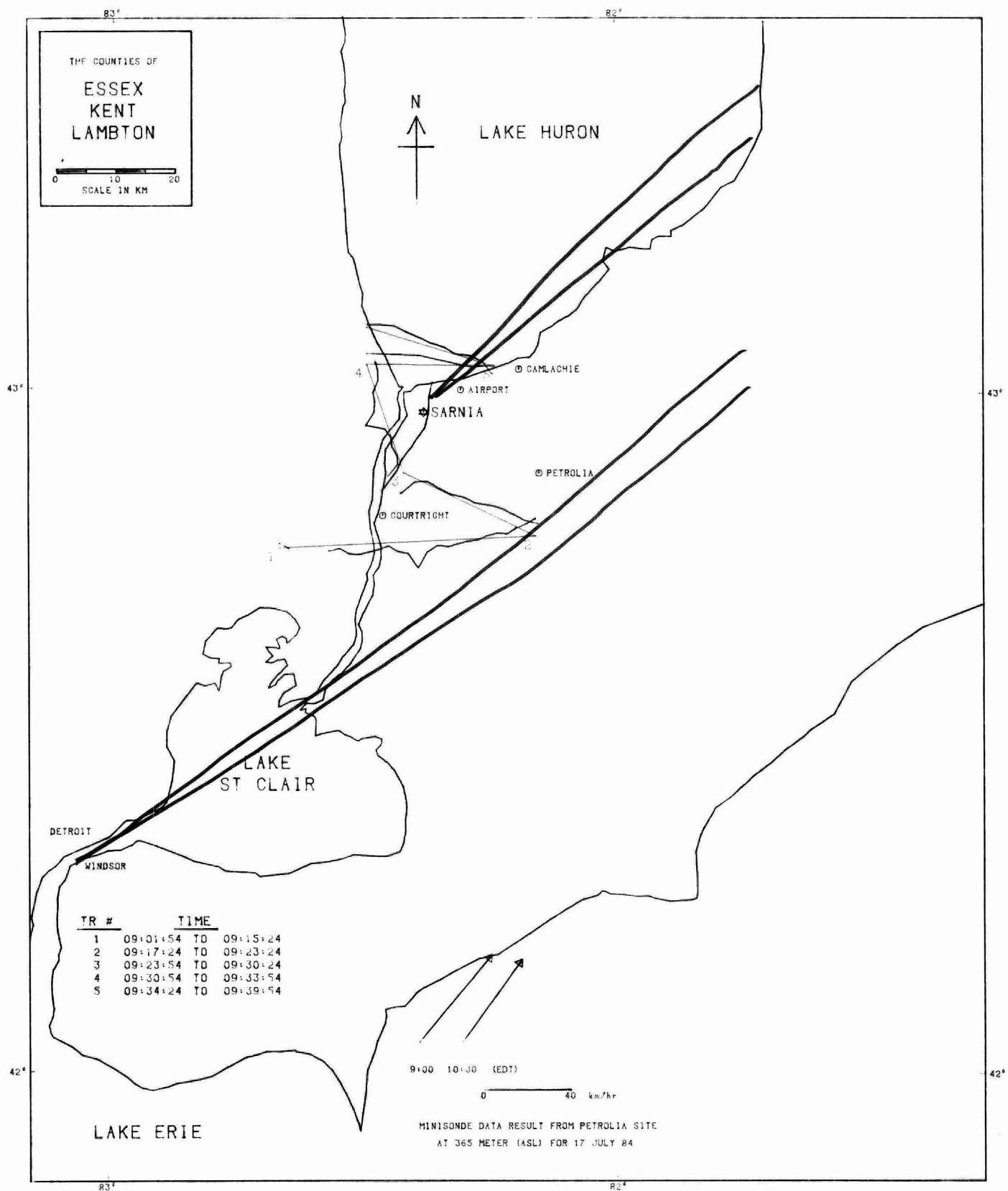


Fig. 30: Same as Fig. 6 but for July 17, 1984

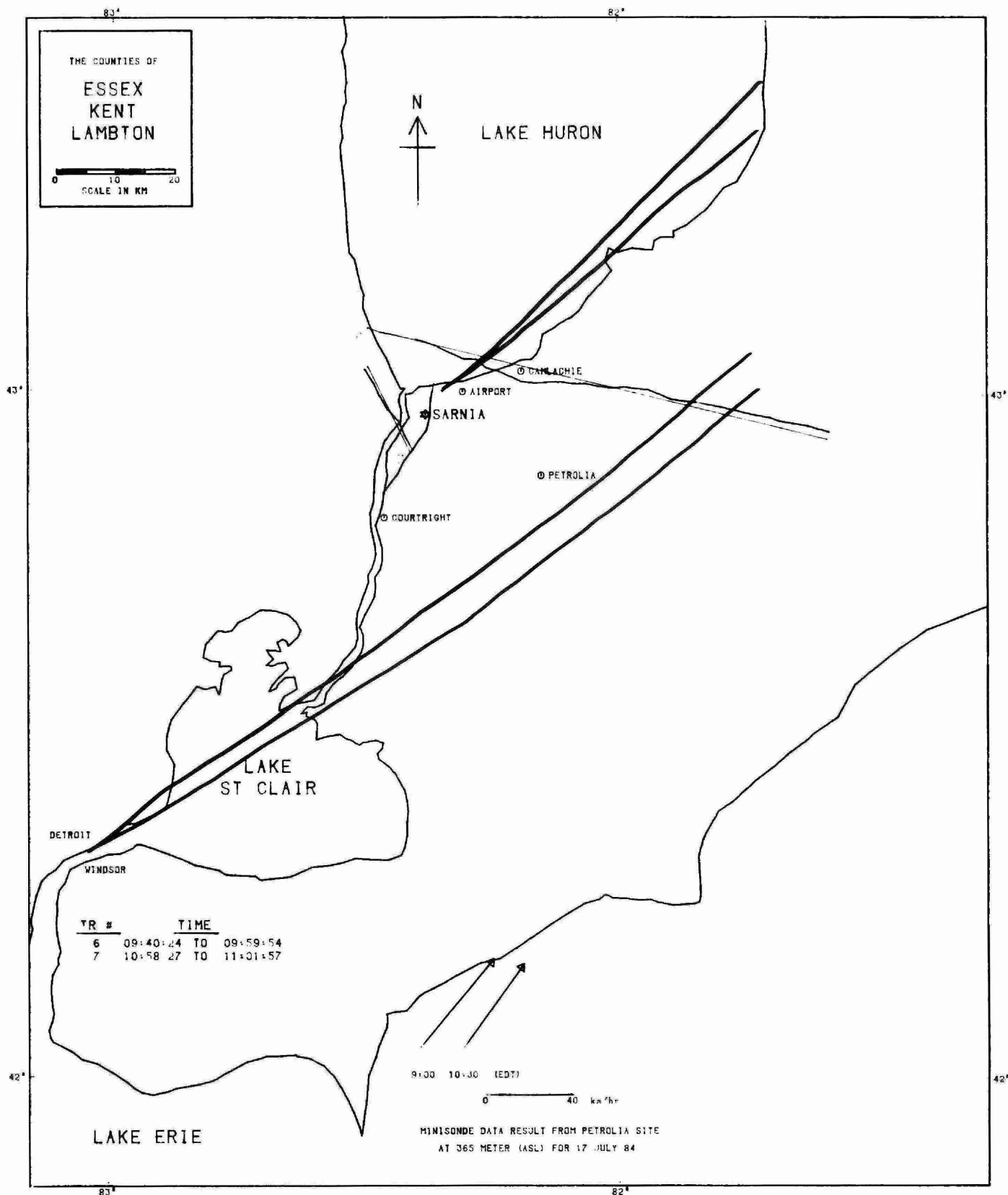


Fig. 30 contd.

JULY 18, 1984: 11:09 - 13:25 EDT:

Under overcast skies, moderate northwest winds were reported by all three sites. Figures 32a and b show the flight path on this day. One HC sample was collected downwind of the Sarnia chemical industries. A spiral was flown near Chatham. The flight was terminated with an upwind traverse.

GENERAL COMMENTS (Refer to Figure 33)

Ozone levels were below 40 ppb. Elevated HC levels were detected downwind of Sarnia by the photoionization detector. NO/NO_x plumes from the Sarnia area were also picked up. The spiral near Chatham did not show any ozone stratification.

HS/mb/AR41-13

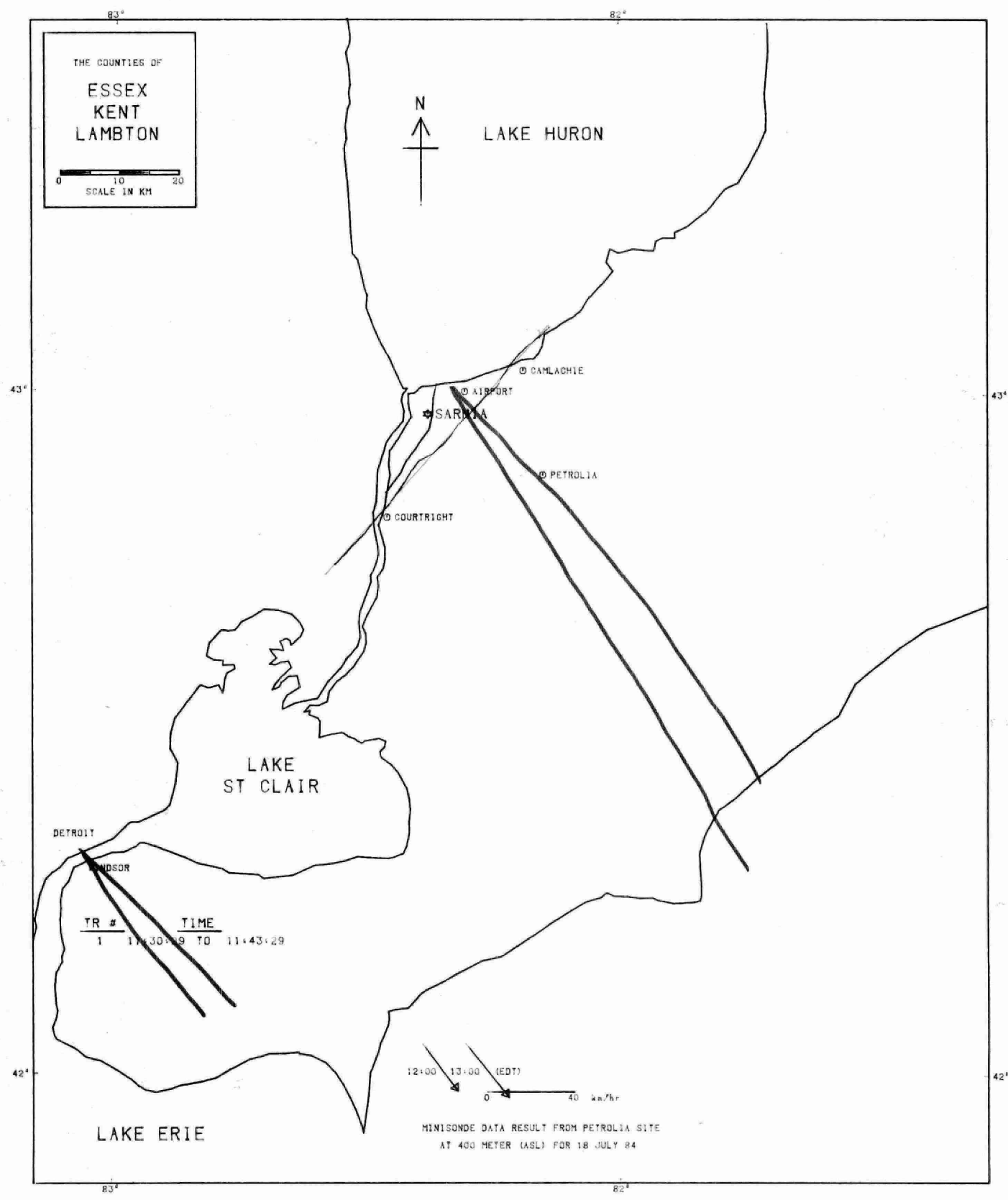


Fig. 32: Same as Fig. 6 but for July 18, 1984

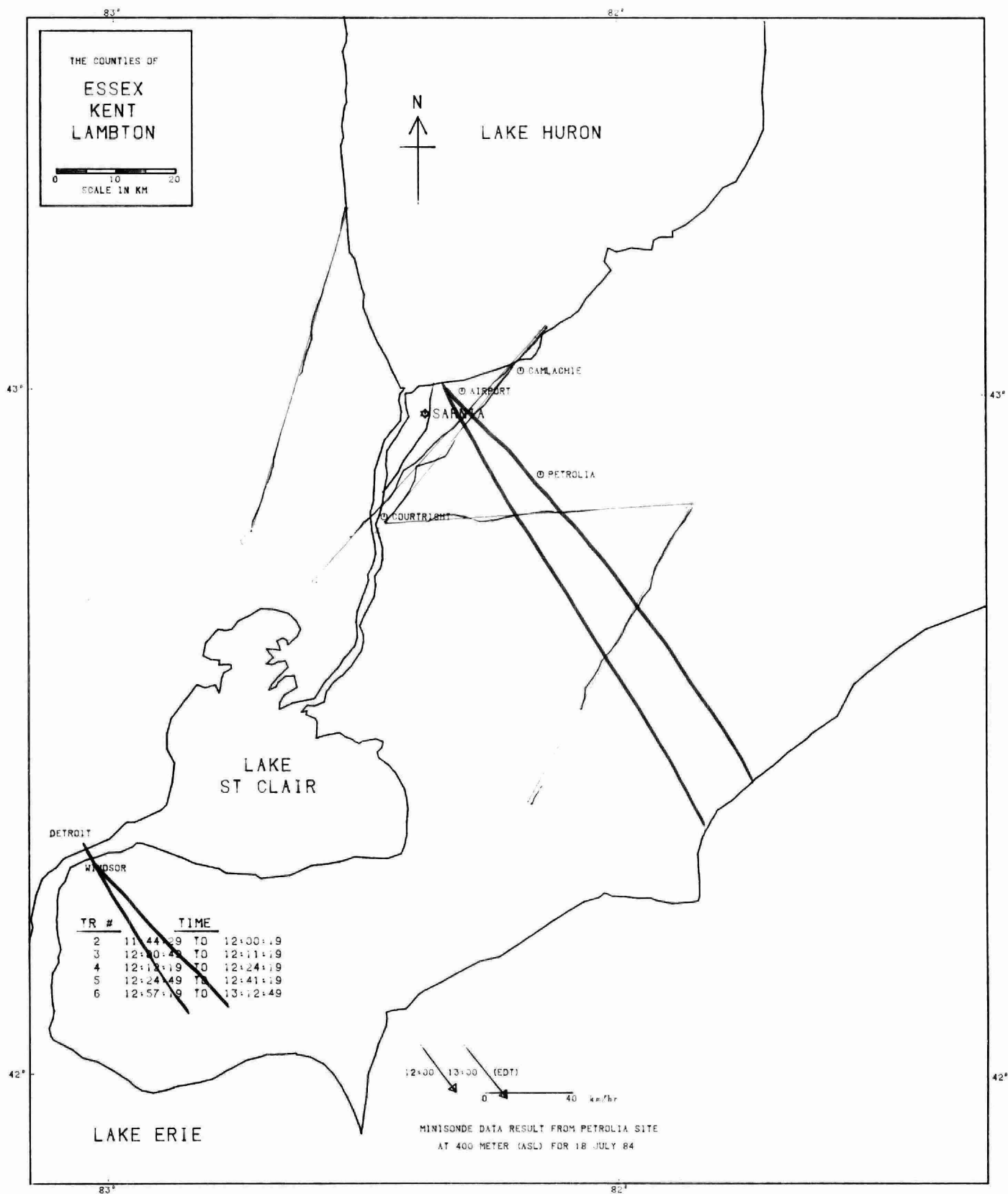


Fig. 32 contd.

AIRCRAFT DATA FOR 18-JULY-84

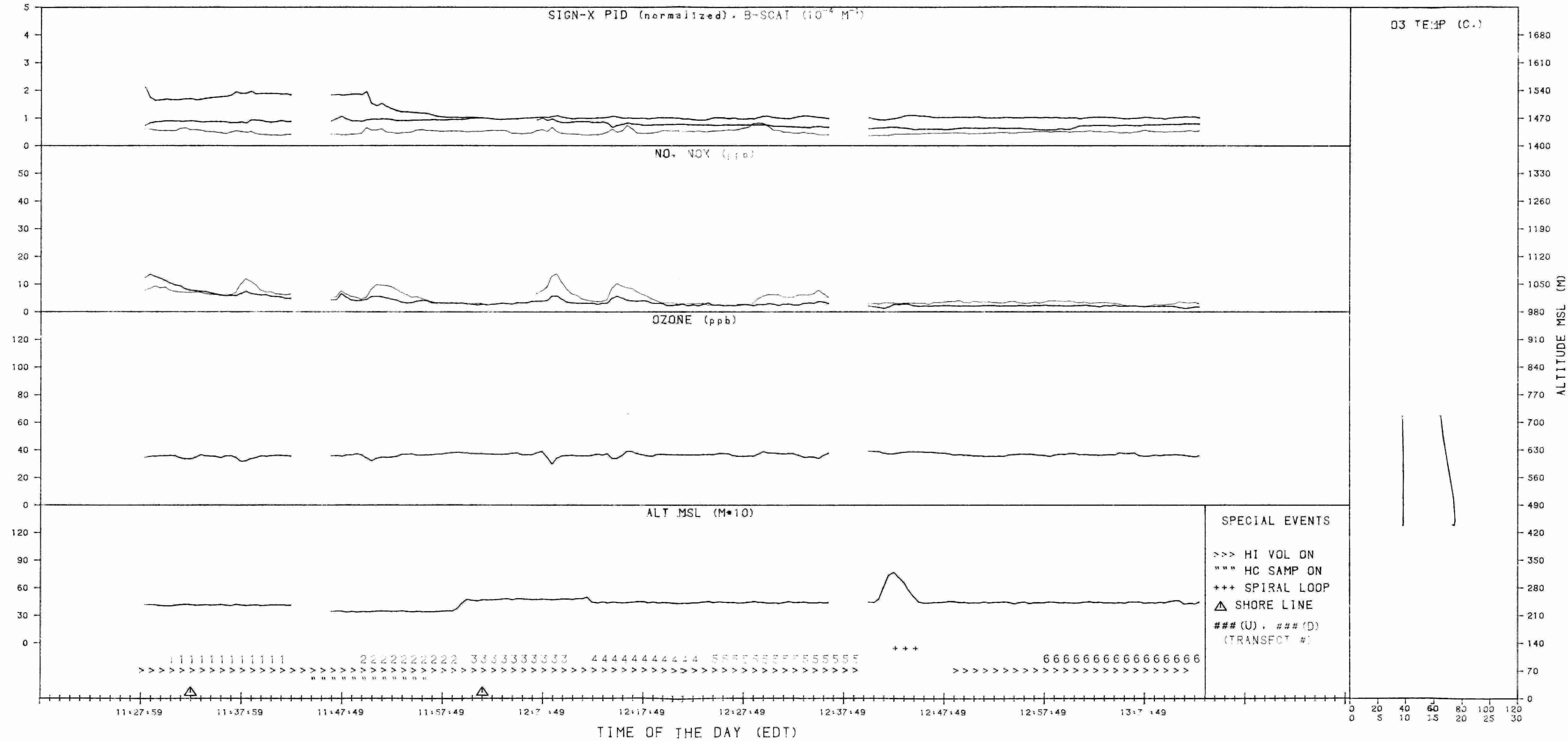


Fig. 33: Same as Fig. 7 but for July 18, 1984

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Appendix A

DATA TABULATION
SARNIA OXIDANT STUDY
JUNE 27, - JULY 18, 1984

Data presented in the following section are half minute averages. Missing data are labelled as -999.99. The left bracket symbol < should be ignored. Concentrations of O_3 , NO, and NO_x are in ppb. The altitude is in meters above sea level, the temperature and dew point in degrees celsius. The light scattering coefficient B-Scat is represented in units of $10^{-4} M^{-1}$. The results of the Sign-X SO_2 analyser (ppb) and the photoionization detector (ppm) are considered to be qualitative and were used only for purposes of plume detection.

BARNIA OXIDANT STUDY
27 JUNE 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
15:44:17	42 18	3 39	8 48	201 71	1332 85	22 14	8 44	86	-999 99	3 17
15:44:47	49 27	3 07	4 73	388 37	1475 83	21 97	3 83	1 20	-999 99	09
15:45:17	42 34	2 72	4 75	204 43	1255 77	22 80	8 49	87	-999 99	3 31
15:45:47	43 04	2 44	4 18	202 97	1242 24	22 95	9 25	93	-999 99	3 49
15:46:17	43 35	2 30	5 24	204 09	1375 89	22 48	8 74	95	-999 99	3 33
15:46:47	43 23	2 14	5 12	204 47	1340 91	22 39	8 74	94	-999 99	7 08
15:47:17	48 15	2 12	5 97	202 43	1421 03	22 23	8 98	99	-999 99	14 47
15:47:47	37 38	2 79	7 28	204 14	1488 23	22 00	8 68	97	-999 99	14 54
15:48:17	34 17	3 92	9 34	215 82	1478 04	21 99	8 75	97	-999 99	14 45
15:48:47	33 95	4 38	11 59	218 15	1458 34	22 01	8 27	91	-999 99	14 94
15:49:17	40 58	3 75	8 80	213 90	1418 24	21 97	8 18	92	-999 99	14 73
15:49:47	41 94	2 74	4 78	209 03	1353 51	22 14	8 03	89	-999 99	14 44
15:50:17	42 40	2 19	4 29	209 38	1285 98	22 32	7 73	89	-999 99	14 54
15:50:47	42 09	1 80	4 11	211 23	1279 51	22 32	8 40	93	-999 99	14 57
15:51:17	42 04	1 80	5 42	209 49	1344 44	21 99	8 18	91	-999 99	14 53
15:51:47	42 75	1 94	5 74	209 99	1502 12	21 45	8 18	88	-999 99	14 41
15:52:17	42 79	1 70	5 23	210 18	1401 72	21 24	7 70	95	-999 99	14 59
15:52:47	43 50	1 52	4 73	213 78	1578 90	21 24	8 18	98	-999 99	14 54
15:53:17	44 49	1 94	5 72	214 81	1536 35	21 48	7 54	1 00	-999 99	14 57
15:53:47	45 41	1 84	4 11	215 82	1428 74	21 72	7 35	1 03	-999 99	14 84
15:54:17	44 98	1 94	4 75	219 88	1483 15	21 77	7 40	1 04	-999 99	14 54
15:54:47	44 83	1 38	4 04	214 24	1392 47	19 23	8 07	1 02	-999 99	14 73
15:55:17	45 29	2 19	5 83	213 25	1417 44	21 71	7 44	99	-999 99	14 40
15:55:47	45 41	2 23	5 48	214 74	1454 95	21 54	7 48	1 04	-999 99	14 24
15:56:17	45 37	1 52	5 19	213 32	1444 77	21 44	7 78	1 04	-999 99	14 40
15:56:47	45 88	1 45	4 49	213 52	1430 59	21 44	7 19	1 04	-999 99	14 72
15:57:17	44 24	1 20	4 59	215 59	1480 23	21 54	7 32	1 02	-999 99	14 48
15:57:47	45 87	1 84	4 18	214 51	1504 75	21 38	7 32	1 02	-999 99	14 54
15:58:17	45 87	1 10	4 13	218 27	1509 22	21 12	7 28	98	-999 99	14 50
15:58:47	45 44	49	3 34	221 11	1487 47	21 33	7 59	1 01	-999 99	14 51
15:59:17	45 98	99	4 28	218 54	1369 54	21 31	7 53	97	-999 99	14 35
15:59:47	45 98	1 20	4 84	218 31	1311 57	21 38	7 44	99	-999 99	14 37
16:00:17	45 71	1 48	4 35	220 30	1240 44	21 54	7 90	98	-999 99	14 44
16:00:47	45 53	1 77	4 52	214 08	1343 99	21 27	8 00	97	-999 99	14 59
16:01:17	45 23	1 91	4 35	215 43	1414 10	21 18	7 90	94	-999 99	14 44
16:01:47	44 22	1 73	4 35	218 84	1452 17	20 91	7 74	92	-999 99	14 40
16:02:17	43 93	1 55	4 20	219 42	1454 33	20 75	8 04	89	-999 99	14 38
16:02:47	43 38	1 55	3 89	218 31	1458 03	20 42	8 24	91	-999 99	14 25
16:03:17	42 31	1 44	3 44	218 04	1448 50	20 54	8 55	89	-999 99	14 23
16:03:47	41 11	1 59	3 43	220 38	1487 02	20 41	8 22	98	-999 99	14 38
16:04:17	40 61	1 59	3 04	220 38	1450 02	20 33	8 02	99	-999 99	14 34
16:04:47	40 71	1 52	3 08	221 03	1393 28	20 52	7 55	99	-999 99	14 44
16:05:17	40 44	1 44	3 19	221 24	1334 84	20 82	4 84	1 00	-999 99	14 52
16:05:47	40 15	1 41	3 50	219 23	1331 00	20 48	7 39	1 00	-999 99	14 27
16:06:17	40 07	1 52	3 85	220 53	1307 87	20 41	7 41	97	-999 99	14 89
16:06:47	39 68	2 14	3 43	217 14	1408 08	20 31	8 00	97	-999 99	14 20
16:07:17	39 18	1 77	3 71	218 00	1444 34	20 04	8 09	94	-999 99	14 03
16:07:47	39 39	1 48	3 44	221 80	1425 04	20 12	7 80	94	-999 99	14 10
16:08:17	39 43	1 31	3 58	219 74	1401 30	20 20	7 44	92	-999 99	14 04
16:08:47	39 48	1 34	3 99	222 22	1394 82	20 19	7 80	91	-999 99	15 97
16:09:17	39 49	1 27	3 75	221 91	1354 43	20 27	8 25	95	-999 99	15 93
16:09:47	40 14	1 20	3 43	219 73	1327 41	20 25	8 34	92	-999 99	15 82
16:10:17	39 88	1 20	3 53	218 41	1376 43	20 29	8 04	90	-999 99	13 72

SARNIA OXIDANT STUDY
27 JUNE 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
16:37:17	40.22	1.10	4.71	216.14	1420.11	22.23	8.48	84	-999.99	-999.99
16:37:47	41.51	1.13	4.82	218.81	1432.75	22.25	8.41	91	-999.99	-999.99
16:38:17	42.84	1.13	7.07	218.19	1404.54	22.34	8.49	90	-999.99	-999.99
16:38:47	45.30	1.31	6.43	218.23	1399.45	22.44	8.49	84	-999.99	-999.99
16:39:17	45.49	1.43	5.14	220.11	1454.49	22.34	8.04	85	-999.99	-999.99
16:39:47	45.30	92	4.35	221.72	1443.27	22.15	7.95	84	-999.99	-999.99
16:40:17	45.30	1.02	4.20	219.45	1427.82	22.22	8.28	83	-999.99	-999.99
16:40:47	45.10	95	3.32	219.11	1389.89	22.47	8.19	84	-999.99	-999.99
16:41:17	45.74	1.04	3.34	219.07	1354.13	22.57	8.22	83	-999.99	-999.99
16:41:47	46.55	78	3.48	219.57	1378.48	22.44	8.47	89	-999.99	-999.99
16:42:17	46.34	81	3.53	215.42	1423.81	22.42	8.23	94	-999.99	-999.99
16:42:47	46.24	40	3.99	223.37	1428.43	22.51	8.32	95	-999.99	-999.99
16:43:17	46.31	78	4.03	217.50	1445.88	22.44	8.30	91	-999.99	-999.99
16:43:47	45.28	28	4.10	218.41	1404.07	22.55	8.44	89	-999.99	-999.99
16:44:17	45.24	18	4.17	221.14	1425.35	21.43	8.08	90	-999.99	-999.99
16:44:47	44.95	25	3.92	223.54	1444.47	20.27	8.11	92	-999.99	-999.99
16:45:17	45.30	71	3.47	225.48	1454.44	19.41	8.43	92	-999.99	-999.99
16:45:47	44.52	78	3.75	225.74	1491.33	20.50	8.40	97	-999.99	-999.99
16:46:17	44.08	95	4.20	229.81	1435.52	21.81	8.49	97	-999.99	-999.99
16:46:47	42.49	1.31	4.54	231.44	1372.42	22.30	8.54	95	-999.99	-999.99
16:47:17	41.41	1.73	5.41	238.55	1347.38	22.25	8.88	97	-999.99	-999.99
16:47:47	40.22	2.12	4.04	240.49	1348.88	22.29	8.61	94	-999.99	-999.99
16:48:17	38.88	2.19	7.44	244.30	1352.58	22.22	8.40	99	-999.99	-999.99
16:48:47	39.51	2.14	8.09	245.33	1319.59	22.34	8.71	95	-999.99	-999.99
16:49:17	42.18	1.77	4.89	238.51	1421.94	22.17	8.05	92	-999.99	-999.99
16:49:47	42.57	1.84	4.25	235.84	1524.17	21.84	4.74	93	-999.99	-999.99
16:50:17	44.54	2.19	5.45	240.12	1545.02	21.79	7.78	92	-999.99	-999.99
16:50:47	45.13	1.77	5.14	241.44	1541.90	21.89	8.57	94	-999.99	-999.99
16:51:17	44.27	1.27	4.31	243.24	1473.74	22.05	8.18	94	-999.99	-999.99
16:51:47	44.77	95	3.75	244.87	1441.73	21.95	8.22	94	-999.99	-999.99
16:52:17	44.85	81	3.82	244.48	1442.84	21.84	7.85	1.01	-999.99	-999.99
16:52:47	44.99	40	3.89	243.30	1437.07	21.82	8.11	99	-999.99	-999.99
16:53:17	44.97	99	4.17	242.88	1429.97	21.74	7.98	1.01	-999.99	-999.99
16:53:47	47.14	81	4.20	241.92	1423.81	21.48	8.14	1.02	-999.99	-999.99
16:54:17	45.81	1.04	4.24	241.54	1428.12	21.58	8.25	99	-999.99	-999.99
16:54:47	45.29	47	4.03	239.01	1441.42	21.30	8.15	97	-999.99	-999.99
16:55:17	45.07	92	3.32	238.44	1452.48	21.14	8.11	94	-999.99	-999.99
16:55:47	45.32	95	3.18	238.82	1454.44	21.07	8.22	98	-999.99	-999.99
16:56:17	45.15	85	2.90	240.12	1444.05	20.89	8.23	98	-999.99	-999.99
16:56:47	45.15	04	2.72	240.42	1474.84	20.82	8.21	99	-999.99	-999.99
16:57:17	44.91	07	2.58	241.81	1478.38	20.74	8.18	94	-999.99	-999.99
16:57:47	45.12	47	2.45	240.81	1417.44	20.84	8.12	97	-999.99	-999.99
16:58:17	44.11	1.13	3.44	241.50	1393.28	20.87	8.47	97	-999.99	-999.99
16:58:47	44.37	1.02	3.85	241.77	1448.17	20.45	8.19	95	-999.99	-999.99
16:59:17	43.04	85	3.57	243.49	1445.39	20.59	7.97	92	-999.99	-999.99
17:59:47	42.98	1.20	3.50	240.44	1418.24	20.48	7.97	90	-999.99	-999.99
17:00:17	42.42	1.31	3.53	240.54	1431.82	20.71	7.81	88	-999.99	-999.99
17:00:47	42.04	1.04	2.74	240.20	1442.04	20.42	7.44	89	-999.99	-999.99
17:01:17	41.51	95	3.22	239.74	1473.14	20.41	7.54	87	-999.99	-999.99
17:01:47	41.41	32	3.22	242.27	1477.44	20.35	7.40	89	-999.99	-999.99
17:02:17	41.33	39	2.90	244.24	1468.52	20.53	7.12	85	-999.99	-999.99
17:02:47	41.04	14	2.47	244.22	1441.49	20.42	7.04	83	-999.99	-999.99
17:03:17	40.94	25	2.05	242.42	1431.21	20.54	7.51	84	-999.99	-999.99

BARNIA OXIDANT STUDY
28 JUNE 84
FLIGHT 01
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
11:43:30	35 30	0 85	4 13	3 54	1172 31	21 54	8 91	1 12	-240 950	13 49
11:44:00	35 72	0 88	3 71	4 75	1172 17	21 44	9 11	1 13	-240 940	13 30
11:44:30	34 23	0 85	3 44	5 54	1144 79	21 36	9 72	1 19	-240 600	12 72
11:45:00	37 23	1 17	3 50	4 10	1184 99	21 23	9 49	1 20	-240 430	13 31
11:45:30	36 92	1 20	3 50	1 92	1199 11	21 21	9 33	1 24	-237 810	13 26
11:46:00	34 77	0 74	3 18	2 11	1189 34	21 14	9 48	1 29	-240 290	13 29
11:46:30	37 47	0 85	3 32	3 14	1200 53	21 07	9 34	1 22	-240 740	13 39
11:47:00	34 55	1 31	3 89	3 45	1229 41	20 94	9 51	1 27	-240 530	13 37
11:47:30	35 75	0 81	3 34	3 95	1220 45	20 87	9 47	1 21	-240 880	13 40
11:48:00	34 83	0 39	3 39	2 41	1230 08	20 83	9 20	1 20	-240 990	13 31
11:48:30	35 19	0 32	4 10	1 230	1218 97	20 77	9 89	1 29	-240 590	13 28
11:49:00	35 19	-0 07	3 40	2 300	1220 45	20 74	9 48	1 27	-240 750	13 40
11:49:30	34 83	0 88	3 32	3 450	1224 49	20 62	9 84	1 24	-240 910	13 42
11:50:00	34 43	0 95	3 25	3 030	1211 90	20 57	9 94	1 23	-241 120	13 52
11:50:30	34 29	0 85	3 44	3 740	1239 51	20 47	9 85	1 25	-241 050	13 42
11:51:00	34 43	0 44	3 14	3 300	1207 52	20 44	10 03	1 27	-240 990	13 28
11:51:30	33 93	0 74	2 84	1 450	1212 57	20 55	9 85	1 19	-241 500	13 47
11:52:00	33 90	0 92	2 74	1 800	1218 97	20 41	10 07	1 25	-238 600	13 22
11:52:30	32 38	1 04	2 30	3 410	1209 21	20 44	9 34	1 09	-242 200	13 32
11:53:00	32 27	0 74	2 23	2 030	1210 22	20 48	9 03	1 04	-237 180	13 25
11:53:30	31 94	1 10	2 90	1 720	1220 99	20 54	9 38	1 07	-239 790	12 88
11:54:00	31 94	0 92	2 45	2 410	1197 09	20 51	9 54	1 09	-239 590	13 36
11:54:30	32 81	0 39	2 08	3 540	1204 51	20 29	9 74	1 12	-239 730	13 41
11:55:00	32 13	0 71	2 24	1 950	1237 15	20 31	9 70	1 12	-239 490	13 39
11:55:30	31 99	0 81	2 14	1 070	1240 52	20 28	9 73	1 10	-239 850	13 49
11:56:00	32 20	1 02	2 05	1 240	1235 13	20 33	9 84	1 09	-239 870	13 03
11:56:30	32 42	0 57	2 37	1 240	1194 10	20 38	9 94	1 09	-239 440	5 46
11:57:00	32 45	0 18	3 11	0 770	1220 45	20 24	9 84	1 03	-239 410	2 21
11:57:30	31 79	0 07	3 00	1 410	1211 33	20 40	9 54	0 93	-242 910	2 17
11:58:00	31 99	0 35	2 90	1 570	1211 54	20 44	9 92	0 94	-242 850	2 23
11:58:30	32 27	0 57	2 23	1 000	1198 43	20 32	10 14	1 02	-242 710	2 38
11:59:00	33 03	0 32	2 74	2 800	1188 00	20 38	10 02	1 01	-242 930	2 42
11:59:30	33 04	0 21	2 93	4 940	1192 37	20 41	9 90	1 00	-240 310	2 39
12:00:00	33 17	0 88	2 47	2 430	1178 57	20 39	10 04	1 00	-243 080	1 34
12:00:30	32 94	1 73	2 97	1 150	1204 83	20 27	10 25	1 05	-242 800	-0 40
12:01:00	32 62	1 31	3 07	1 190	1231 43	20 31	9 93	1 02	-243 050	-0 42
12:01:30	33 01	1 04	3 22	0 490	1252 97	20 20	10 04	1 04	-240 350	-0 41
12:02:00	33 13	0 95	3 14	1 230	1235 47	20 23	10 07	1 04	-240 550	-0 41
12:02:30	33 49	0 14	2 90	1 490	1219 44	20 31	10 15	1 09	-243 150	-0 40
12:03:00	34 75	0 11	2 79	1 380	1231 74	20 24	10 21	1 10	-243 200	-0 42
12:03:30	34 80	0 04	2 58	1 190	1224 02	20 30	10 23	1 13	-243 120	-0 40
12:04:00	34 02	-0 11	2 49	2 380	1221 33	20 34	10 28	1 14	-243 030	-0 40
12:04:30	34 43	0 42	2 58	3 870	1229 41	20 33	10 59	1 39	-242 010	-0 40
12:05:00	37 74	1 02	2 47	1 380	1230 75	20 28	10 72	1 49	-241 590	-0 40
12:05:30	38 39	1 20	2 51	1 840	1221 44	20 32	10 73	1 44	-241 700	-0 54
12:06:00	38 84	0 78	2 74	1 840	1233 78	20 39	10 47	1 41	-239 420	-0 44
12:06:30	38 71	0 57	2 90	1 380	1230 08	20 53	10 51	1 37	-242 300	-0 42
12:07:00	37 94	0 40	3 04	1 740	1224 34	20 44	10 31	1 28	-242 820	-0 40
12:07:30	38 28	0 88	3 00	1 070	1230 42	20 71	10 11	1 27	-242 870	-0 42
12:08:00	39 78	1 24	3 22	1 380	1231 74	20 78	9 98	1 24	-243 050	-0 55
12:08:30	39 07	0 44	3 25	1 380	1234 79	20 84	9 99	1 22	-243 290	-0 59
12:09:00	38 71	0 74	3 11	2 490	1232 77	20 93	9 94	1 19	-243 450	-0 41
12:09:30	38 66	1 41	1 07	3 170	1224 02	21 04	9 84	1 17	-243 480	-0 58

SARNIA OXIDANT STUDY
20 JUNE 84
FLIGHT 8-1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
13:29:51	48.23	0.25	4.52	1.240	1253.98	21.73	13.44	1.88	-243.440	11.36
13:30:21	45.63	-0.04	4.77	0.110	1254.99	22.18	12.94	1.85	-243.920	11.07
13:30:51	41.84	0.49	5.24	0.490	1270.48	20.85	11.88	1.80	-241.600	12.82
13:31:21	38.57	0.47	5.51	0.340	1224.34	23.14	9.81	1.42	-245.190	12.95
13:31:51	34.12	0.71	5.90	0.540	1257.35	23.00	9.78	1.44	-245.090	12.94
13:32:21	38.01	1.55	5.97	0.540	1243.07	22.97	9.69	1.49	-245.060	12.89
13:32:51	41.39	1.10	5.42	0.440	1297.08	20.55	9.52	1.45	-244.080	13.10
13:33:21	45.51	1.10	4.88	0.190	1254.99	21.74	8.99	1.46	-243.430	13.22
13:33:51	47.34	0.81	4.38	0.540	1244.58	22.98	8.84	1.49	-244.000	13.15
13:34:21	49.20	0.32	3.94	2.480	1210.22	23.15	8.58	1.51	-245.910	13.25
13:34:51	49.74	0.49	3.44	1.840	1198.77	23.20	8.45	1.54	-245.790	13.07
13:35:21	52.63	-0.14	3.89	-0.040	1242.40	22.71	8.43	1.55	-245.770	12.75
13:35:51	53.24	-0.440	3.99	0.410	1240.72	22.64	8.40	1.49	-243.380	12.93
13:36:21	50.64	-0.180	3.57	-0.380	1288.32	20.79	8.14	1.41	-246.450	13.17
13:36:51	48.45	-0.420	3.94	0.730	1240.85	22.75	8.19	1.29	-247.130	13.09
13:37:21	42.45	0.800	3.53	-1.740	1241.73	22.67	7.60	1.83	-248.530	13.07
13:37:51	39.98	0.250	3.14	0.340	1241.39	22.79	7.24	0.99	-245.890	12.87
13:38:21	37.49	-0.740	2.84	-0.150	1233.43	22.82	6.97	0.94	-249.010	13.07
13:38:51	37.40	-0.440	2.69	0.440	1275.53	22.17	7.15	0.92	-249.190	13.04
13:39:21	34.77	-1.200	2.37	0.420	1247.11	22.59	6.71	0.94	-249.000	13.15
13:39:51	34.75	-1.180	2.24	0.440	1228.84	22.79	6.94	0.94	-244.290	13.22
13:40:21	36.74	-0.400	2.05	0.440	1214.28	22.73	7.02	0.95	-249.120	12.89
13:40:51	34.34	-0.470	1.73	0.730	1224.34	22.77	7.14	0.94	-249.210	12.82
13:41:21	34.11	-0.180	1.59	0.500	1234.12	22.54	6.34	0.94	-249.250	12.77
13:41:51	35.94	0.250	1.73	0.380	1254.00	22.57	6.47	0.95	-249.350	12.41
13:42:21	34.33	0.840	1.87	-0.150	1249.41	22.41	6.84	0.94	-243.450	11.29
13:42:51	34.46	-0.280	1.84	0.270	1242.20	22.43	6.54	0.97	-249.370	12.39
13:43:21	35.73	-0.470	2.14	-0.270	1213.25	22.49	6.78	0.94	-249.440	12.19
13:43:51	35.34	-0.140	2.05	0.450	1284.28	22.23	6.77	0.92	-249.590	11.43
13:44:21	34.08	-0.320	1.41	0.150	1425.48	21.89	6.43	0.84	-249.950	11.35
13:44:51	34.08	0.070	1.10	-1.740	1543.38	21.32	6.28	0.90	-249.810	10.49
13:45:21	33.90	0.440	1.20	-0.440	1581.90	21.20	6.54	0.91	-249.850	12.29
13:45:51	33.83	0.44	1.10	-2.110	1552.94	21.23	6.34	0.92	-249.950	12.71
13:46:21	34.54	-0.14	1.04	-2.840	1541.14	21.14	6.70	0.94	-247.150	12.48
13:46:51	34.15	-0.71	0.74	-1.420	1527.02	21.19	7.41	0.95	-249.860	12.53
13:47:21	33.44	-1.02	0.88	0.570	1555.30	20.94	7.08	0.93	-249.920	12.47
13:47:51	34.19	-0.42	0.71	0.450	1542.17	20.95	7.81	0.98	-249.490	11.85
13:48:21	34.19	-0.04	0.71	-0.940	1544.75	20.87	7.11	0.97	-247.190	11.95
13:48:51	34.90	-0.35	0.88	-0.880	1495.71	20.95	7.72	0.99	-249.820	12.80
13:49:21	34.53	-0.28	0.88	3.140	1520.42	20.89	7.49	0.99	-249.820	12.74
13:49:51	34.22	-1.02	0.47	2.220	1534.78	20.92	8.13	0.94	-247.270	12.77
13:50:21	34.59	-0.92	0.74	0.190	1504.44	20.83	8.42	1.00	-249.340	8.23
13:50:51	34.41	0.07	0.95	0.420	1507.14	20.82	8.49	0.97	-244.550	2.17
13:51:21	34.37	0.28	1.24	-0.310	1527.02	21.02	8.37	0.95	-249.430	1.74
13:51:51	35.05	0.00	1.13	0.440	1443.71	20.42	8.20	1.00	-249.170	-0.55
13:52:21	35.04	-0.39	1.31	-0.040	1730.70	20.90	8.34	0.99	-249.290	-0.48
13:52:51	35.41	0.04	1.17	0.380	1731.36	20.83	7.90	1.01	-249.300	-0.44
13:53:21	34.12	0.44	1.23	-0.350	1740.47	20.80	8.34	1.05	-249.320	-0.44
13:53:51	34.45	0.14	1.41	0.350	1794.47	20.78	8.03	1.09	-249.180	-0.43
13:54:21	34.04	-0.32	1.41	2.480	1754.94	20.78	8.37	1.05	-244.790	-0.44
13:54:51	34.74	-0.92	1.44	-0.230	1829.48	20.64	8.37	1.04	-241.430	-0.44
13:55:21	37.45	-0.40	1.91	-1.240	1798.04	20.88	8.84	1.08	-244.120	-0.45
13:55:51	34.92	-1.060	1.44	-1.840	1864.02	21.02	8.82	1.05	-244.990	-0.48

BARNIA OXIDANT STUDY
3 JULY 84
FLIGHT 641
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
11:14:41	40 35	-2 400	-0 470	-999 00	1205 35	27 18	13 15	2 27	-999 00	0 14
11:15:11	44 72	-1 170	0 420	-999 00	1379 30	24 58	11 94	2 38	-999 00	0 15
11:15:41	44 50	-1 430	-0 440	-999 00	1381 40	24 53	12 23	2 40	-999 00	0 15
11:16:11	43 21	-1 980	-0 350	-999 00	1344 70	24 54	12 00	2 41	-999 00	0 14
11:16:41	42 95	-0 110	1 310	-999 00	1343 95	24 40	11 74	2 23	-999 00	0 14
11:17:11	42 44	14 700	15 420	-999 00	1310 00	24 70	11 88	2 23	-999 00	0 14
11:17:41	43 27	19 890	22 050	-999 00	1337 30	24 05	11 44	2 21	-999 00	0 17
11:18:11	43 02	20 180	22 790	-999 00	1314 20	24 00	11 30	2 14	-999 00	0 17
11:18:41	42 70	18 490	22 330	-999 00	1290 75	24 79	11 49	2 24	-999 00	0 17
11:19:11	41 91	17 000	21 270	-999 00	1243 10	27 08	11 74	2 20	-999 00	0 14
11:19:41	42 41	15 94	20 81	-999 00	1287 95	24 99	11 27	2 17	-999 00	0 15
11:20:11	42 70	15 05	20 14	-999 00	1337 30	24 84	11 49	2 18	-999 00	0 15
11:20:41	43 72	14 73	19 45	-999 00	1334 95	24 85	11 01	2 11	-999 00	0 15
11:21:11	44 34	13 32	18 97	-999 00	1347 75	24 78	11 22	2 12	-999 00	0 15
11:21:41	45 11	12 45	18 51	-999 00	1340 85	24 84	10 48	2 04	-999 00	0 15
11:22:11	47 54	11 87	17 21	-999 00	1293 20	27 04	10 55	2 10	-999 00	0 15
11:22:41	70 77	11 70	14 44	-999 00	1320 15	24 98	10 34	2 18	-999 00	0 15
11:23:11	72 49	11 44	14 47	-999 00	1338 45	24 80	10 38	2 25	-999 00	0 15
11:23:41	71 54	11 70	15 90	-999 00	1292 85	24 82	10 24	2 25	-999 00	0 15
11:24:11	73 23	11 45	15 90	-999 00	1250 20	24 95	10 52	2 21	-999 00	0 15
11:24:41	74 27	10 85	14 32	-999 00	1234 40	27 03	10 85	2 32	-999 00	0 15
11:25:11	75 34	10 39	14 01	-999 00	1288 30	24 88	10 89	2 39	-999 00	0 15
11:25:41	78 39	10 32	15 84	-999 00	1293 55	24 85	10 48	2 34	-999 00	0 15
11:26:11	78 35	10 28	15 90	-999 00	1291 45	24 80	10 83	2 33	-999 00	0 15
11:26:41	77 57	9 89	15 83	-999 00	1243 15	24 90	11 12	2 35	-999 00	0 15
11:27:11	78 57	9 79	14 08	-999 00	1221 88	27 07	10 50	2 30	-999 00	0 15
11:27:41	77 89	9 50	14 01	-999 00	1334 85	24 82	10 74	2 29	-999 00	0 15
11:28:11	77 91	9 48	15 90	-999 00	1510 20	24 24	10 81	2 30	-999 00	0 15
11:28:41	74 87	9 48	15 58	-999 00	1419 05	24 10	10 92	2 34	-999 00	0 15
11:29:11	74 48	8 87	14 91	-999 00	1744 30	25 95	11 14	2 37	-999 00	0 15
11:29:41	74 31	8 42	14 63	-999 00	1790 20	24 09	11 05	2 40	-999 00	-3 97
11:30:11	74 14	8 49	14 91	-999 00	1818 20	24 05	10 48	2 34	-999 00	-8 38
11:30:41	75 50	8 59	14 84	-999 00	1724 05	24 19	10 49	2 33	-999 00	7 45
11:31:11	75 41	8 30	14 77	-999 00	1432 70	24 25	10 59	2 28	-999 00	13 95
11:31:41	73 85	8 30	14 77	-999 00	1400 85	24 39	11 09	2 30	-999 00	14 23
11:32:11	73 07	8 34	14 42	-999 00	1414 15	24 40	10 99	2 30	-999 00	14 24
11:32:41	72 73	7 74	14 35	-999 00	1585 45	24 35	10 79	2 33	-999 00	14 23
11:33:11	72 67	7 81	14 20	-999 00	1555 00	24 30	10 41	2 24	-999 00	13 95
11:33:41	73 17	7 99	13 57	-999 00	1500 75	24 41	10 44	2 21	-999 00	13 41
11:34:11	73 12	8 20	13 04	-999 00	1443 70	24 45	10 85	2 25	-999 00	12 49
11:34:41	73 98	8 04	12 72	-999 00	1478 00	24 32	10 72	2 24	-999 00	13 18
11:35:11	73 69	7 49	13 00	-999 00	1448 40	24 43	10 58	2 08	-999 00	14 01
11:35:41	73 39	7 44	12 84	-999 00	1500 75	24 47	10 44	2 12	-999 00	13 99
11:36:11	72 42	7 49	12 41	-999 00	1499 35	24 54	10 84	2 11	-999 00	13 73
11:36:41	71 94	7 42	12 54	-999 00	1579 15	24 22	10 44	2 03	-999 00	12 69
11:37:11	72 40	7 35	12 24	-999 00	1417 45	24 19	11 47	2 34	-999 00	13 37
11:37:41	73 78	7 24	12 72	-999 00	1444 30	24 04	10 53	2 10	-999 00	12 54
11:38:11	73 37	7 28	13 32	-999 00	1472 40	24 03	10 87	2 12	-999 00	13 10
11:38:41	74 83	6 71	13 14	-999 00	1703 75	25 75	10 44	2 14	-999 00	12 93
11:39:11	75 34	6 57	12 74	-999 00	1455 10	25 96	10 70	2 15	-999 00	11 70
11:39:41	75 55	6 48	13 07	-999 00	1450 55	25 93	9 99	2 10	-999 00	10 48
11:40:11	74 80	6 71	12 93	-999 00	1609 95	24 17	10 39	2 09	-999 00	12 21
11:40:41	75 55	6 48	12 72	-999 00	1531 90	24 34	11 47	2 20	-999 00	12 48

SARNIA OXIDANT STUDY
3 JULY 84
FLIGHT 01
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-BCAT	PID	SCFM
12:07:41	74 94	4 50	14 94	-999 00	1434 25	25 94	10 94	2 43	-999 00	-0 43
12:08:11	74 19	4 89	18 37	-999 00	1427 40	24 10	11 19	2 52	-999 00	-0 43
12:08:41	79 22	4 48	19 15	-999 00	1480 80	24 88	10 73	2 54	-999 00	-0 41
12:09:11	80 44	4 82	19 75	-999 00	1449 95	24 11	10 31	2 44	-999 00	-0 43
12:09:41	81 44	4 94	19 34	-999 00	1498 30	24 13	10 51	2 47	-999 00	-0 42
12:10:11	79 75	7 31	19 93	-999 00	1538 90	24 15	10 37	2 37	-999 00	-0 41
12:10:41	44 74	8 44	22 54	-999 00	1535 05	24 00	10 34	2 53	-999 00	-0 44
12:11:11	42 93	10 32	30 25	-999 00	1474 95	24 11	10 73	3 08	-999 00	-0 43
12:11:41	43 85	11 02	34 32	-999 00	1491 45	24 24	10 84	2 81	-999 00	-0 42
12:12:11	44 41	11 17	37 77	-999 00	1493 75	24 21	10 82	2 42	-999 00	-0 44
12:12:41	74 71	10 11	35 05	-999 00	1534 80	24 24	9 94	2 28	-999 00	-0 44
12:13:11	82 04	8 59	28 42	-999 00	1459 45	24 43	9 90	2 24	-999 00	-0 44
12:13:41	80 75	8 30	25 79	-999 00	1450 35	24 58	10 35	2 41	-999 00	-0 44
12:14:11	82 98	8 13	23 00	-999 00	1488 15	24 43	10 42	2 24	-999 00	-0 42
12:14:41	82 19	7 43	21 02	-999 00	1510 95	24 22	10 40	2 34	-999 00	-0 45
12:15:11	74 81	7 53	20 44	-999 00	1538 20	24 34	9 88	2 38	-999 00	-0 44
12:15:41	77 89	7 53	19 89	-999 00	1538 85	24 51	8 84	2 00	-999 00	-0 45
12:16:11	79 90	6 89	17 10	-999 00	1454 90	24 83	8 47	1 97	-999 00	-0 44
12:16:41	78 17	4 34	15 12	-999 00	1443 30	24 82	8 42	1 94	-999 00	-0 45
12:17:11	77 40	4 61	13 74	-999 00	1458 05	24 72	8 99	1 94	-999 00	-0 49
12:17:41	79 44	4 32	12 44	-999 00	1444 15	24 81	7 95	1 92	-999 00	-0 42
12:18:11	79 24	4 04	10 78	-999 00	1444 75	24 84	8 45	1 92	-999 00	-0 49
12:18:41	79 41	5 97	10 74	-999 00	1485 80	24 49	8 84	1 92	-999 00	-0 49
12:19:11	78 22	5 51	10 81	-999 00	1444 15	24 83	8 83	1 99	-999 00	-0 49
12:19:41	82 82	5 98	10 85	-999 00	1488 45	24 78	8 24	1 91	-999 00	-0 45
12:20:11	85 90	5 74	10 44	-999 00	1445 45	24 70	8 45	2 00	-999 00	-0 48
12:20:41	84 34	5 72	10 28	-999 00	1444 80	24 59	9 33	2 03	-999 00	-0 48
12:21:11	84 25	5 72	10 25	-999 00	1440 50	24 52	9 30	2 07	-999 00	-0 43
12:21:41	84 43	5 97	10 44	-999 00	1453 50	24 59	9 10	2 03	-999 00	-0 42
12:22:11	85 85	4 15	10 47	-999 00	1428 30	24 71	9 25	2 04	-999 00	-0 43
12:22:41	85 75	4 04	10 40	-999 00	1475 90	24 55	8 95	2 05	-999 00	-0 44
12:23:11	87 12	4 11	10 40	-999 00	1404 15	24 75	9 12	2 13	-999 00	-0 47
12:23:41	87 84	5 94	10 35	-999 00	1408 00	24 85	9 48	2 18	-999 00	-0 45
12:24:11	87 02	5 51	10 54	-999 00	1431 45	24 73	9 79	2 15	-999 00	-0 44
12:24:41	84 33	5 44	10 44	-999 00	1453 15	24 57	9 45	2 14	-999 00	-0 45
12:25:11	88 18	5 45	10 44	-999 00	1479 05	24 40	9 44	2 21	-999 00	-0 42
12:25:41	85 78	5 90	11 24	-999 00	1477 45	24 49	9 32	2 04	-999 00	-0 49
12:26:11	84 80	5 42	10 71	-999 00	1462 40	24 51	9 52	2 09	-999 00	-0 44
12:26:41	83 32	5 90	10 47	-999 00	1470 45	24 41	9 85	2 11	-999 00	-0 41
12:27:11	83 71	4 32	10 49	-999 00	1500 75	24 42	9 54	2 12	-999 00	-0 44
12:27:41	80 55	4 25	9 48	-999 00	1485 80	24 44	9 19	1 93	-999 00	-0 47
12:28:11	81 47	5 87	9 34	-999 00	1391 20	24 49	9 50	1 93	-999 00	-0 42
12:28:41	82 52	5 48	9 43	-999 00	1343 20	24 93	9 87	1 95	-999 00	-0 45
12:29:11	83 45	5 58	9 41	-999 00	1404 85	24 79	9 43	1 94	-999 00	-0 40
12:29:41	85 31	5 74	9 58	-999 00	1402 75	24 77	10 04	2 03	-999 00	4 18
12:30:11	85 58	5 58	9 72	-999 00	1420 25	24 49	9 79	2 02	-999 00	13 97
12:30:41	85 87	5 42	10 25	-999 00	1488 85	24 77	9 73	2 02	-999 00	12 77
12:31:11	87 91	5 14	10 28	-999 00	1473 10	24 44	9 77	2 04	-999 00	13 42
12:31:41	84 97	5 19	10 28	-999 00	1444 45	24 40	9 48	1 99	-999 00	13 83
12:32:11	84 70	5 02	10 32	-999 00	1417 45	24 49	9 53	1 98	-999 00	13 41
12:32:41	87 92	5 24	10 53	-999 00	1385 25	24 90	9 33	1 99	-999 00	13 92
12:33:11	89 11	5 05	10 88	-999 00	1334 15	27 02	9 38	1 99	-999 00	14 31
12:33:41	88 24	4 43	10 44	-999 00	1240 70	27 29	9 22	1 99	-999 00	14 53

BARNIA OXIDANT STUDY
3 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
13:00:41	81.34	5.48	9.41	-999.00	1544.55	24.48	10.61	2.00	-999.00	14.42
13:01:11	81.04	5.41	9.89	-999.00	1573.90	24.45	10.14	1.94	-999.00	14.43
13:01:41	84.44	5.58	10.11	-999.00	1577.75	24.41	10.43	2.15	-999.00	14.45
13:02:11	90.85	5.51	10.39	-999.00	1554.45	24.41	10.97	2.35	-999.00	14.72
13:02:41	92.51	5.58	11.42	-999.00	1514.30	24.32	10.77	2.33	-999.00	14.45
13:03:11	88.24	5.83	11.80	-999.00	1451.05	24.52	11.27	2.20	-999.00	14.59
13:03:41	89.49	5.62	12.19	-999.00	1419.55	24.52	11.01	2.24	-999.00	14.44
13:04:11	87.84	5.51	12.37	-999.00	1392.25	24.43	10.73	2.14	-999.00	14.40
13:04:41	81.14	5.24	11.31	-999.00	1333.10	24.40	10.30	1.91	-999.00	14.48
13:05:11	80.04	5.37	10.11	-999.00	1253.30	24.84	10.43	1.98	-999.00	14.40
13:05:41	78.59	5.49	10.07	-999.00	1204.05	24.93	10.50	1.90	-999.00	14.39
13:06:11	79.22	5.58	9.45	-999.00	1243.15	24.87	10.50	1.89	-999.00	14.56
13:06:41	74.50	5.34	9.43	-999.00	1470.30	24.41	10.18	1.84	-999.00	14.42
13:07:11	75.92	5.05	9.33	-999.00	1544.15	24.19	10.02	1.85	-999.00	14.47
13:07:41	75.85	5.19	9.24	-999.00	1524.45	24.20	10.07	1.83	-999.00	14.49
13:08:11	74.55	5.09	8.42	-999.00	1525.25	24.25	9.74	1.81	-999.00	14.40
13:08:41	77.49	4.98	8.37	-999.00	1540.95	24.20	9.59	1.82	-999.00	14.35
13:09:11	80.32	5.02	8.44	-999.00	1573.90	24.18	9.48	1.84	-999.00	14.45
13:09:41	83.30	5.02	8.44	-999.00	1588.40	24.22	9.17	1.92	-999.00	14.41
13:10:11	84.80	5.05	8.49	-999.00	1587.20	24.28	9.10	2.01	-999.00	14.51
13:10:41	88.35	5.34	8.80	-999.00	1570.75	24.32	9.34	2.11	-999.00	14.51
13:11:11	90.12	5.45	9.24	-999.00	1557.10	24.34	9.53	2.13	-999.00	14.45
13:11:41	89.30	5.37	9.72	-999.00	1551.85	24.34	9.44	2.10	-999.00	14.31
13:12:11	88.30	5.30	9.58	-999.00	1573.20	24.28	9.34	2.07	-999.00	14.13
13:12:41	88.84	5.23	9.58	-999.00	1401.90	24.33	9.24	2.05	-999.00	12.98
13:13:11	84.51	5.05	9.29	-999.00	1585.45	24.55	9.07	2.02	-999.00	14.18
13:13:41	84.29	4.70	9.58	-999.00	1591.40	24.40	9.23	2.04	-999.00	14.42
13:14:11	82.93	4.77	9.58	-999.00	1547.95	24.70	9.11	2.05	-999.00	14.14
13:14:41	82.52	5.19	9.43	-999.00	1547.30	24.42	9.23	2.01	-999.00	13.47
13:15:11	83.44	5.14	9.47	-999.00	1559.55	24.48	9.35	2.04	-999.00	12.57
13:15:41	82.50	4.91	9.50	-999.00	1552.55	24.48	9.39	2.04	-999.00	12.58
13:16:11	83.13	5.12	9.15	-999.00	1541.30	24.39	9.59	2.04	-999.00	12.91
13:16:41	85.00	5.34	9.29	-999.00	1574.00	24.37	9.71	2.10	-999.00	13.41
13:17:11	83.93	5.37	8.59	-999.00	1583.00	24.51	9.42	2.14	-999.00	13.43
13:17:41	84.44	5.55	8.52	-999.00	1574.35	24.41	9.48	2.17	-999.00	13.37
13:18:11	84.39	5.48	8.87	-999.00	1585.10	24.72	9.44	2.27	-999.00	13.34
13:18:41	83.84	5.48	9.33	-999.00	1574.70	24.79	9.42	2.29	-999.00	14.04
13:19:11	85.49	5.37	9.54	-999.00	1575.45	24.81	9.84	2.34	-999.00	13.47
13:19:41	84.34	5.09	10.07	-999.00	1544.80	24.85	9.89	2.34	-999.00	13.01
13:20:11	82.50	4.81	9.54	-999.00	1575.30	24.94	9.14	2.31	-999.00	13.48
13:20:41	81.48	5.05	8.97	-999.00	1544.10	27.02	9.44	2.30	-999.00	13.91
13:21:11	84.54	5.30	9.41	-999.00	1592.10	27.04	9.74	2.32	-999.00	14.44
13:21:41	84.00	4.93	9.45	-999.00	1571.10	27.04	10.13	2.41	-999.00	14.25
13:22:11	85.07	5.09	9.58	-999.00	1421.15	24.85	10.01	2.32	-999.00	12.84
13:22:41	87.11	5.34	9.82	-999.00	1549.05	27.10	9.94	2.32	-999.00	14.30
13:23:11	84.83	5.34	9.41	-999.00	1528.40	27.15	9.34	2.15	-999.00	14.33
13:23:41	84.35	5.34	9.41	-999.00	1579.15	24.89	9.82	2.14	-999.00	13.42
13:24:11	84.81	5.34	9.58	-999.00	1557.10	24.94	9.89	2.24	-999.00	12.47
13:24:41	84.88	5.24	9.58	-999.00	1570.75	24.74	9.27	2.23	-999.00	12.30
13:25:11	83.45	5.14	9.40	-999.00	1557.10	24.72	9.20	2.14	-999.00	13.42
13:25:41	84.35	4.70	9.33	-999.00	1549.40	24.43	9.58	2.08	-999.00	13.10
13:26:11	85.70	4.88	9.47	-999.00	1535.40	24.44	9.45	2.08	-999.00	13.08
13:26:41	84.24	4.88	9.48	-999.00	1531.90	24.40	9.42	2.13	-999.00	12.93

BARNIA OXIDANT STUDY
3 JULY 84
FLIGHT # 2
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
16:33:14	1 54	1 27	1 10	-999 00	398 98	31 97	-49 49	0 04	-999 00	-0 51
16:33:44	1 58	1 20	0 99	-999 00	393 41	31 44	-49 49	0 04	-999 00	-0 42
16:34:14	1 54	1 17	1 27	-999 00	533 47	31 02	-49 49	0 04	-999 00	-0 44
16:34:44	16 34	0 07	0 28	-999 00	819 75	30 17	-44 99	0 20	-999 00	-0 43
16:35:14	48 49	-0 44	-0 78	-999 00	1074 98	29 38	14 87	3 43	-999 00	-0 42
16:35:44	74 51	-1 52	-1 34	-999 00	1244 24	28 82	12 89	3 58	-999 00	-0 41
16:36:14	81 44	-1 94	-0 78	-999 00	1501 78	28 17	11 35	3 39	-999 00	-0 21
16:36:44	78 49	-1 38	0 42	-999 00	1433 48	28 33	10 24	3 29	-999 00	-0 23
16:37:14	74 35	-1 10	1 59	-999 00	1459 14	28 38	10 84	3 14	-999 00	-0 42
16:37:44	74 91	-1 82	1 45	-999 00	1594 38	28 67	10 07	3 14	-999 00	-0 47
16:38:14	77 37	-0 53	1 87	-999 00	1547 32	28 72	10 14	3 15	-999 00	-0 44
16:38:44	78 69	-0 35	2 05	-999 00	1594 53	28 54	10 21	3 14	-999 00	-0 42
16:39:14	78 52	-0 47	1 24	-999 00	1541 14	28 81	9 97	3 04	-999 00	-0 45
16:39:44	78 23	-0 78	1 24	-999 00	1579 49	28 72	9 81	3 04	-999 00	-0 45
16:40:14	77 38	-0 85	1 31	-999 00	1544 39	28 73	9 42	3 01	-999 00	-0 44
16:40:44	77 28	-0 71	1 41	-999 00	1545 77	28 49	9 70	2 94	-999 00	-0 44
16:41:14	77 91	-0 53	1 59	-999 00	1550 31	28 48	9 53	3 01	-999 00	-0 48
16:41:44	77 47	-0 00	1 48	-999 00	1570 10	28 48	9 94	3 05	-999 00	-0 48
16:42:14	74 31	5 74	4 11	-999 00	1577 21	28 53	9 84	2 99	-999 00	-0 44
16:42:44	74 81	8 94	8 97	-999 00	1585 54	28 48	9 75	3 02	-999 00	-0 47
16:43:14	74 98	9 82	10 81	-999 00	1544 54	28 83	9 70	3 04	-999 00	-0 42
16:43:44	74 82	10 18	11 34	-999 00	1547 43	28 77	9 54	3 04	-999 00	-0 42
16:44:14	74 58	10 00	11 91	-999 00	1575 34	28 90	9 78	3 08	-999 00	-0 41
16:44:44	77 94	9 48	11 48	-999 00	1543 30	29 05	9 81	3 09	-999 00	-0 47
16:45:14	77 94	9 75	11 55	-999 00	1571 94	29 05	9 87	3 13	-999 00	-0 42
16:45:44	78 91	9 15	11 87	-999 00	1542 28	29 00	9 84	3 14	-999 00	-0 44
16:46:14	81 23	8 44	10 88	-999 00	1578 74	28 83	9 95	3 21	-999 00	-0 44
16:46:44	80 27	8 27	10 42	-999 00	1544 23	28 80	10 10	3 19	-999 00	-0 44
16:47:14	77 13	7 99	10 14	-999 00	1548 25	28 84	10 12	3 28	-999 00	-0 40
16:47:44	74 67	8 23	9 79	-999 00	1587 72	29 11	9 94	3 53	-999 00	-0 41
16:48:14	77 81	8 44	10 00	-999 00	1547 33	29 22	9 71	3 47	-999 00	-0 49
16:48:44	77 93	8 27	9 93	-999 00	1571 34	29 00	9 88	3 73	-999 00	-0 45
16:49:14	77 79	7 84	9 47	-999 00	1552 48	29 14	9 71	3 94	-999 00	-0 46
16:49:44	77 18	7 38	9 29	-999 00	1549 79	29 09	10 05	4 10	-999 00	-0 48
16:50:14	77 88	4 82	8 44	-999 00	1543 20	29 11	9 98	4 25	-999 00	-0 42
16:50:44	78 35	4 94	8 59	-999 00	1549 39	28 92	9 82	4 29	-999 00	-0 43
16:51:14	77 40	7 03	8 52	-999 00	1551 84	28 47	10 11	4 28	-999 00	-0 43
16:51:44	77 47	4 82	8 52	-999 00	1551 84	28 47	10 11	4 28	-999 00	-0 43
16:52:14	77 38	4 47	8 44	-999 00	1544 13	28 72	10 18	4 20	-999 00	-0 44
16:52:44	77 32	4 47	9 15	-999 00	1582 47	28 54	10 03	4 02	-999 00	-0 41
16:53:14	77 94	4 44	8 74	-999 00	1539 80	28 47	10 00	4 14	-999 00	-0 40
16:53:44	78 74	4 93	8 48	-999 00	1278 54	29 35	10 04	4 14	-999 00	-0 45
16:54:14	78 15	4 57	8 48	-999 00	1279 48	29 25	10 14	4 12	-999 00	-0 48
16:54:44	77 47	4 18	8 52	-999 00	1299 27	29 09	10 44	4 04	-999 00	-0 48
16:55:14	77 84	4 18	9 08	-999 00	1258 15	29 17	10 48	3 99	-999 00	-0 45
16:55:44	78 84	5 55	8 94	-999 00	1282 58	28 97	9 90	3 98	-999 00	-0 43
16:56:14	78 45	5 79	8 97	-999 00	1294 49	28 91	9 57	4 04	-999 00	-0 44
16:56:44	78 78	5 94	8 73	-999 00	1302 47	28 84	9 74	4 07	-999 00	-0 45
16:57:14	79 82	4 01	8 48	-999 00	1330 81	28 93	9 47	4 03	-999 00	-0 44
16:57:44	80 22	4 22	8 44	-999 00	1287 21	29 08	9 74	3 93	-999 00	-0 46
16:58:14	80 32	4 15	8 09	-999 00	1289 47	29 00	9 80	3 77	-999 00	-0 48
16:58:44	81 47	4 18	8 48	-999 00	1272 04	28 99	9 72	3 82	-999 00	-0 45
16:59:14	80 43	4 29	8 41	-999 00	1240 01	28 84	9 44	3 84	-999 00	-0 46

BARNIA OXIDANT STUDY
3 JULY 84
FLIGHT 8 2
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
17:24:11	83 78	5 79	19 08	-999 00	1403 00	28 70	11 07	3 32	-999 00	13 50
17:24:41	81 53	5 72	22 01	-999 00	1435 33	28 71	10 98	3 31	-999 00	14 00
17:27:11	78 88	4 04	24 91	-999 00	1455 33	28 69	11 07	3 27	-999 00	14 18
17:27:41	85 31	4 04	25 51	-999 00	1428 00	28 81	11 02	3 13	-999 00	14 45
17:28:11	90 98	5 58	20 99	-999 00	1445 00	28 83	10 49	3 03	-999 00	14 42
17:28:41	90 73	5 44	17 31	-999 00	1442 67	28 80	10 75	3 08	-999 00	13 45
17:29:11	84 31	5 44	14 85	-999 00	1444 00	28 84	11 00	3 32	-999 00	13 53
17:29:41	88 94	5 41	15 72	-999 00	1422 00	28 82	11 14	2 91	-999 00	14 10
17:30:11	91 60	5 58	13 74	-999 00	1441 00	28 80	11 47	3 00	-999 00	12 94
17:30:41	85 12	5 90	13 29	-999 00	1457 33	29 00	10 33	2 87	-999 00	13 34
17:31:11	83 44	5 44	12 54	-999 00	1442 00	29 11	10 23	2 88	-999 00	13 51
17:31:41	83 61	5 48	10 81	-999 00	1440 33	29 13	10 02	2 87	-999 00	13 52
17:32:11	83 47	5 05	9 79	-999 00	1424 67	29 24	9 44	2 89	-999 00	13 82
17:32:41	82 57	5 30	9 29	-999 00	1422 33	29 17	10 25	2 90	-999 00	14 27
17:33:11	82 08	5 41	8 37	-999 00	1440 33	29 00	9 97	2 85	-999 00	14 05
17:33:41	82 72	5 44	7 43	-999 00	1417 33	29 08	9 71	2 89	-999 00	14 54
17:34:11	81 33	5 41	7 60	-999 00	1432 33	28 94	9 97	2 89	-999 00	14 09
17:34:41	80 41	5 44	7 43	-999 00	1434 00	28 92	10 01	2 89	-999 00	13 99
17:35:11	80 53	5 30	7 74	-999 00	1430 00	28 91	9 87	2 93	-999 00	12 93
17:35:41	80 15	5 34	8 23	-999 00	1447 00	28 84	10 10	2 87	-999 00	13 32
17:36:11	80 05	5 34	7 88	-999 00	1441 00	28 84	9 88	2 88	-999 00	13 46
17:36:41	79 58	5 19	7 88	-999 00	1437 33	28 84	9 94	2 87	-999 00	14 14
17:37:11	79 15	4 52	7 47	-999 00	1445 33	28 87	10 02	2 90	-999 00	13 94
17:37:41	78 32	4 43	7 21	-999 00	1454 33	28 89	9 85	2 93	-999 00	13 87
17:38:11	78 42	5 23	4 89	-999 00	1440 00	28 94	9 99	2 88	-999 00	12 85
17:38:41	78 23	5 55	4 93	-999 00	1450 00	28 94	10 25	2 83	-999 00	12 99
17:39:11	78 13	5 24	7 10	-999 00	1451 00	29 02	10 23	2 88	-999 00	13 55
17:39:41	77 88	5 51	7 70	-999 00	1438 00	29 10	10 12	2 91	-999 00	13 37
17:40:11	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
17:40:41	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
17:41:13	78 17	5 30	7 77	-999 00	1472 67	29 44	10 14	2 74	-999 00	14 51
17:41:43	79 17	5 23	7 40	-999 00	1419 00	29 79	9 92	2 78	-999 00	15 14
17:42:13	78 37	5 12	7 49	-999 00	1437 33	29 49	10 30	2 73	-999 00	14 79
17:42:43	78 44	5 19	7 53	-999 00	1405 33	29 34	9 94	2 49	-999 00	13 68
17:43:13	78 18	5 24	7 49	-999 00	1407 33	29 14	10 14	2 73	-999 00	12 70
17:43:43	78 04	5 19	4 94	-999 00	1425 00	28 94	10 02	2 49	-999 00	13 44
17:44:13	78 03	5 24	4 57	-999 00	1441 00	28 83	10 23	2 49	-999 00	13 37
17:44:43	78 28	5 24	7 14	-999 00	1447 33	28 99	10 09	2 48	-999 00	13 74
17:45:13	79 05	4 95	7 47	-999 00	1418 00	29 04	10 11	2 44	-999 00	13 28
17:45:43	78 44	4 77	7 42	-999 00	1424 00	28 88	10 04	2 45	-999 00	11 93
17:46:13	78 23	5 19	7 21	-999 00	1445 33	28 73	9 97	2 44	-999 00	13 74
17:46:43	78 54	4 43	7 18	-999 00	1428 67	28 70	10 14	2 70	-999 00	13 24
17:47:13	78 49	4 70	7 40	-999 00	1423 33	28 68	10 13	2 70	-999 00	12 34
17:47:43	78 83	4 91	7 38	-999 00	1437 33	28 54	10 22	2 74	-999 00	12 14
17:48:13	78 42	5 19	7 31	-999 00	1434 00	28 55	10 14	2 74	-999 00	12 40
17:48:43	78 85	5 30	7 44	-999 00	1435 33	28 52	10 10	2 48	-999 00	12 93
17:49:13	78 51	4 98	7 35	-999 00	1438 33	28 47	10 10	2 49	-999 00	12 07
17:49:43	79 30	5 19	7 35	-999 00	1437 67	28 44	10 10	2 82	-999 00	12 65
17:50:13	78 27	5 30	7 40	-999 00	1448 33	28 52	10 05	2 80	-999 00	13 00
17:50:43	78 71	5 30	7 67	-999 00	1459 00	28 54	10 01	2 81	-999 00	12 90
17:51:13	79 88	5 26	7 42	-999 00	1455 67	28 44	10 03	2 91	-999 00	12 14
17:51:43	79 51	5 37	7 49	-999 00	1468 33	28 77	10 00	2 90	-999 00	11 64
17:52:13	79 08	5 55	7 70	-999 00	1454 00	28 80	9 81	2 79	-999 00	11 85

SARNIA OXIDANT STUDY
3 JULY 84
FLIGHT 8 2
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
18 19:29	77 42	4 44	7 31	-999 00	1460 00	28 07	10 42	2 58	-999 00	12 74
18 19:59	77 35	4 88	4 93	-999 00	1454 47	28 17	10 68	2 70	-999 00	13 14
18 20:29	77 25	5 14	4 82	-999 00	1447 33	28 12	10 72	2 73	-999 00	12 11
18 20:59	74 84	5 41	7 28	-999 00	1440 33	28 23	10 45	2 75	-999 00	12 43
18 21:29	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
18 21:59	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
18 22:29	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
18 22:59	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
18 23:27	78 28	5 09	4 43	-999 00	1398 47	28 80	10 84	2 41	-999 00	13 49
18 23:57	77 47	4 70	4 54	-999 00	1412 00	28 53	10 74	2 55	-999 00	12 79
18 24:27	77 74	4 49	4 43	-999 00	1434 33	28 30	10 43	2 43	-999 00	11 98
18 24:57	78 44	4 81	4 44	-999 00	1434 47	28 18	10 53	2 33	-999 00	12 35
18 25:27	79 78	4 98	4 75	-999 00	1438 47	28 04	10 50	2 30	-999 00	12 29
18 25:57	83 28	5 09	4 78	-999 00	1445 00	27 93	10 34	2 33	-999 00	12 39
18 26:27	84 74	4 43	7 42	-999 00	1442 33	27 88	10 24	2 30	-999 00	11 85
18 26:57	85 12	5 30	7 77	-999 00	1438 00	27 87	10 37	2 33	-999 00	11 49
18 27:27	85 31	4 88	7 38	-999 00	1435 33	27 88	10 27	2 27	-999 00	10 41
18 27:57	85 88	4 44	7 54	-999 00	1445 47	27 80	10 12	2 27	-999 00	11 13
18 28:27	85 78	4 88	7 40	-999 00	1435 33	27 82	10 11	2 32	-999 00	12 40
18 28:57	85 20	4 81	7 10	-999 00	1444 33	27 75	9 94	2 21	-999 00	12 78
18 29:27	82 38	4 35	4 82	-999 00	1454 00	27 42	9 72	2 04	-999 00	12 51
18 29:57	81 48	4 54	4 50	-999 00	1454 33	27 70	9 42	2 07	-999 00	12 25
18 30:27	80 87	4 43	7 03	-999 00	1448 47	27 88	9 58	2 07	-999 00	11 15
18 30:57	81 77	4 73	7 24	-999 00	1454 47	27 83	9 50	2 05	-999 00	11 27
18 31:27	80 95	4 88	7 35	-999 00	1457 33	27 83	9 40	2 01	-999 00	11 71
18 31:57	80 58	5 09	7 35	-999 00	1454 00	27 88	9 34	2 02	-999 00	12 20
18 32:27	80 54	4 91	7 42	-999 00	1441 00	27 90	9 32	2 01	-999 00	11 49
18 32:57	80 43	5 30	4 94	-999 00	1444 47	27 89	9 29	1 98	-999 00	12 38
18 33:27	82 04	5 30	4 41	-999 00	1454 33	27 94	9 33	2 05	-999 00	12 74
18 33:57	83 33	5 34	4 94	-999 00	1447 47	27 93	9 39	2 07	-999 00	12 10
18 34:27	83 91	5 37	4 29	-999 00	1438 00	27 84	9 38	2 07	-999 00	11 51
18 34:57	85 10	5 09	4 44	-999 00	1433 33	27 82	9 52	2 13	-999 00	11 59
18 35:27	93 79	5 14	7 17	-999 00	1429 33	27 70	10 12	2 30	-999 00	12 03
18 35:57	94 08	4 77	7 00	-999 00	1444 47	27 47	9 93	2 25	-999 00	11 57
18 36:27	89 04	4 45	7 35	-999 00	1434 33	27 24	9 45	2 20	-999 00	11 50
18 36:57	87 70	4 38	7 49	-999 00	1483 47	27 05	9 59	2 20	-999 00	11 21
18 37:27	89 01	4 28	7 24	-999 00	1470 33	27 11	9 83	2 28	-999 00	11 82
18 37:57	92 42	4 35	7 53	-999 00	1452 33	27 29	10 12	2 35	-999 00	12 01
18 38:27	94 52	4 20	7 84	-999 00	1443 00	27 35	10 18	2 34	-999 00	11 41
18 38:57	94 03	4 24	7 81	-999 00	1438 33	27 34	9 99	2 40	-999 00	11 81
18 39:27	93 48	4 31	8 02	-999 00	1434 47	27 32	10 09	2 41	-999 00	11 54
18 39:57	91 83	4 28	8 13	-999 00	1433 33	27 31	10 04	2 43	-999 00	11 17
18 40:27	91 03	4 28	8 52	-999 00	1451 47	27 39	9 94	2 45	-999 00	12 23
18 40:57	91 37	4 10	8 23	-999 00	1440 33	27 39	9 94	2 48	-999 00	12 43
18 41:27	90 29	4 24	8 48	-999 00	1455 47	27 44	9 95	2 44	-999 00	12 40
18 41:57	89 03	4 38	8 52	-999 00	1449 00	27 55	9 84	2 48	-999 00	11 49
18 42:27	84 73	4 59	8 34	-999 00	1444 47	27 40	9 71	2 52	-999 00	11 52
18 42:57	83 79	4 84	8 20	-999 00	1452 47	27 55	9 85	2 54	-999 00	11 39
18 43:27	83 35	4 35	7 81	-999 00	1445 33	27 47	9 83	2 58	-999 00	11 49
18 43:57	83 21	5 05	7 35	-999 00	1441 47	27 70	9 43	2 44	-999 00	11 41
18 44:27	82 42	4 81	4 94	-999 00	1453 47	27 48	10 20	2 72	-999 00	12 13
18 44:57	105 88	5 12	8 20	-999 00	1475 00	27 54	11 02	2 91	-999 00	11 74
18 45:27	112 32	5 12	9 27	-999 00	1436 00	27 74	10 95	2 93	-999 00	12 15

SAHNA OXIDANT STUDY
5 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
11:19:01	44 95	7 00	9 01	101 54	1430 48	24 01	10 24	0 42	0 39	11 27
11:19:31	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:20:01	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:20:31	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:21:01	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:21:31	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:21:01	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:22:31	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:23:01	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:23:31	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:24:01	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:24:31	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:25:01	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:25:31	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:26:01	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:26:31	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:27:01	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:27:46	44 44	4 54	8 20	117 45	1422 94	22 35	10 39	0 58	0 40	2 47
11:28:16	44 78	4 48	7 84	118 99	1413 27	22 42	9 95	0 58	0 39	2 47
11:28:46	47 89	4 75	7 74	119 14	1411 98	22 42	10 05	0 57	0 40	-0 28
11:29:16	47 91	4 47	7 54	121 52	1412 42	22 74	9 93	0 56	0 39	-0 40
11:29:46	48 25	4 25	7 42	123 39	1415 52	22 87	9 82	0 54	0 40	-0 40
11:30:16	48 74	4 43	7 28	124 12	1403 59	23 14	9 38	0 54	0 39	-0 35
11:30:46	48 55	4 34	7 53	124 31	1393 92	23 45	9 25	0 53	0 39	2 01
11:31:16	48 34	4 32	7 53	124 01	1379 40	23 41	8 91	0 51	0 39	9 74
11:31:46	47 43	4 08	7 44	120 40	1391 98	23 74	9 32	0 52	0 39	10 03
11:32:16	47 43	4 15	7 77	121 84	1412 30	23 77	9 51	0 53	0 39	9 72
11:32:46	47 51	4 40	7 44	119 18	1409 40	23 73	8 98	0 51	0 41	9 43
11:33:16	47 48	4 43	7 53	118 47	1417 44	23 72	8 93	0 53	0 41	9 52
11:33:46	48 42	4 18	7 40	121 02	1401 33	23 47	8 70	0 52	0 37	9 71
11:34:16	47 47	5 48	7 43	121 78	1400 49	23 77	9 07	0 50	0 40	9 67
11:34:46	47 77	5 23	7 24	124 54	1399 08	23 90	9 41	0 52	0 42	9 99
11:35:16	48 13	5 45	7 21	124 31	1385 85	23 91	9 14	0 50	0 39	9 96
11:35:46	47 84	5 48	7 10	125 92	1402 95	23 97	9 51	0 52	0 40	9 91
11:36:16	48 91	5 48	7 03	124 92	1410 34	24 02	9 42	0 52	0 39	9 90
11:36:46	48 57	5 58	7 28	128 19	1414 23	24 00	9 75	0 53	0 39	9 94
11:37:16	48 82	5 48	7 49	128 45	1404 24	24 04	9 77	0 53	0 39	10 01
11:37:46	48 67	5 30	7 42	129 14	1409 07	24 02	9 82	0 54	0 39	9 90
11:38:16	48 14	5 23	7 77	127 38	1409 07	24 01	9 72	0 53	0 41	9 90
11:38:46	49 30	5 58	8 02	127 94	1401 98	23 97	9 27	0 51	0 39	9 53
11:39:16	50 15	5 48	7 99	127 99	1395 53	23 84	9 44	0 52	0 40	9 54
11:39:46	50 49	5 79	7 74	128 41	1385 53	23 72	9 45	0 54	0 39	9 75
11:40:16	49 45	5 42	7 14	129 37	1394 88	23 47	9 73	0 52	0 39	9 58
11:40:46	48 53	5 48	7 10	129 22	1409 72	24 04	10 18	0 54	0 39	9 40
11:41:16	49 37	5 34	7 14	131 29	1402 42	24 12	10 05	0 54	0 39	9 72
11:41:46	48 13	5 49	4 48	132 21	1401 01	23 99	9 79	0 50	0 37	9 73
11:42:16	49 14	5 90	7 14	114 14	1412 94	24 01	9 51	0 52	0 38	9 42
11:42:46	49 71	4 29	4 93	100 93	1408 75	24 13	9 72	0 53	0 39	9 41
11:43:16	49 79	5 94	7 10	95 95	1404 17	24 19	9 44	0 53	0 39	9 39
11:43:46	50 35	5 51	7 24	91 42	1413 91	24 20	9 42	0 53	0 39	9 34
11:44:16	50 84	5 34	4 85	88 82	1414 23	24 29	9 54	0 52	0 40	9 55
11:44:46	50 98	4 59	7 17	87 84	1411 33	24 28	9 49	0 54	0 39	9 42
11:45:16	48 74	4 81	7 28	90 85	1405 20	24 28	10 42	0 40	0 38	9 44

SARNIA OXIDANT STUDY
5 JULY 84
FLIGHT 01
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
13:05:16	49 93	4 45	5 79	110 63	3216 34	19 47	8 18	0 78	0 40	-0 39
13:05:46	48 53	4 95	5 24	111 32	3450 25	19 49	8 19	0 49	0 39	-0 40
13:06:16	48 57	4 81	5 41	110 78	3074 79	19 90	8 21	0 70	0 37	-0 37
13:06:46	48 82	4 63	5 87	108 71	2993 19	20 24	7 13	0 41	0 39	-0 44
13:07:16	48 14	4 54	4 32	109 71	2694 83	20 73	4 28	0 51	0 39	-0 33
13:07:46	44 89	4 73	6 25	111 32	2802 40	21 08	5 44	0 40	0 40	-0 43
13:08:16	44 43	4 59	5 87	110 71	2755 51	21 14	5 10	0 38	0 38	-0 45
13:08:46	44 22	4 38	5 87	112 44	2492 30	21 31	5 32	0 37	0 39	-0 39
13:09:16	47 00	4 28	5 94	113 31	2415 22	21 54	5 18	0 38	0 39	-0 40
13:09:46	47 75	4 17	5 79	113 31	2531 37	21 78	5 83	0 41	0 37	-0 40
13:10:16	45 32	4 42	5 42	111 24	2437 20	21 81	4 83	0 42	0 40	-0 42
13:10:46	44 17	4 31	5 62	111 93	2410 74	21 84	4 77	0 40	0 40	-0 41
13:11:16	44 32	4 38	4 15	113 44	2325 94	22 23	4 44	0 39	0 39	-0 42
13:11:46	45 20	4 31	5 45	114 73	2212 74	22 52	7 37	0 44	0 39	-0 40
13:12:16	52 04	4 28	5 42	115 88	2135 47	22 51	8 24	0 51	0 40	-0 41
13:12:46	52 38	4 45	5 58	109 43	2054 40	22 59	8 54	0 51	0 40	-0 40
13:13:16	52 12	4 38	5 74	104 99	1930 23	22 93	8 77	0 51	0 38	-0 37
13:13:46	51 48	4 24	5 83	100 55	1840 57	23 07	8 78	0 51	0 41	-0 34
13:14:16	50 27	4 13	4 04	102 04	1815 42	23 11	8 87	0 52	0 39	-0 37
13:14:46	50 49	4 17	5 87	99 84	1741 57	23 23	8 85	0 49	0 39	-0 39
13:15:16	51 83	3 99	5 74	100 14	1448 04	23 58	8 53	0 49	0 39	-0 35
13:15:46	53 89	4 49	5 87	100 78	1557 42	23 95	9 05	0 49	0 39	-0 40
13:16:16	55 44	4 49	5 87	101 77	1472 28	24 12	11 27	0 82	0 39	-0 41
13:16:46	58 72	4 52	4 25	101 81	1380 05	24 11	13 12	1 28	0 40	-0 45
13:17:16	59 14	4 45	4 34	99 90	1279 11	24 37	11 79	1 03	0 38	-0 40
13:17:46	54 51	4 24	4 50	100 34	1198 80	24 59	9 43	0 59	0 39	-0 44
13:18:16	55 81	4 10	4 25	98 43	1122 37	24 77	9 41	0 55	0 39	-0 37
13:18:46	55 39	3 44	5 74	100 55	1041 10	25 00	9 81	0 54	0 41	-0 39
13:19:16	57 45	3 47	5 49	100 44	955 32	24 34	12 24	0 97	0 39	-0 38
13:19:46	42 32	3 99	4 04	101 12	880 82	22 43	15 42	1 73	0 37	-0 38
13:20:16	54 25	3 85	4 34	98 52	755 04	22 38	14 35	1 31	0 39	-0 38
13:20:46	57 49	4 28	4 15	95 07	747 42	22 49	15 58	1 41	0 39	-0 38
13:21:16	44 84	5 09	4 34	97 40	804 04	23 10	14 84	1 83	0 35	-0 42
13:21:46	45 08	4 31	7 00	102 54	784 33	23 28	14 99	1 45	0 35	-0 40
13:22:16	44 99	4 10	7 38	101 93	774 39	23 84	14 34	1 44	0 38	-0 38
13:22:46	44 60	3 94	7 43	103 19	744 98	24 27	13 83	1 50	0 39	-0 39
13:23:16	43 77	3 75	8 37	105 88	782 13	24 02	14 02	1 51	0 39	-0 40
13:23:46	41 28	3 39	8 44	107 14	770 85	24 02	13 79	1 29	0 38	-0 40
13:24:16	59 13	3 78	8 55	105 30	907 91	24 28	11 97	0 91	0 39	-0 37
13:24:46	54 84	4 10	7 67	103 38	979 83	24 58	10 99	0 64	0 40	-0 44
13:25:16	53 74	3 89	7 24	103 45	989 50	25 24	10 20	0 58	0 40	-0 44
13:25:46	52 82	3 94	6 47	100 42	998 53	25 24	10 24	0 54	0 38	-0 41
13:26:16	52 84	4 13	6 08	100 28	972 73	25 38	10 31	0 58	0 40	-0 43
13:26:46	52 39	4 49	5 44	102 73	988 84	25 12	10 42	0 57	0 39	-0 37
13:27:16	51 22	4 28	5 34	104 80	1013 04	24 94	10 42	0 57	0 39	-0 44
13:27:46	50 48	4 45	5 41	103 84	1202 03	24 14	10 08	0 54	0 40	-0 38
13:28:16	51 80	4 31	5 72	103 49	1190 10	24 50	9 84	0 57	0 40	-0 42
13:28:46	52 99	4 20	4 40	103 73	1181 71	24 43	10 42	0 59	0 40	-0 37
13:29:16	51 19	4 03	6 57	101 97	1294 24	24 24	12 44	0 45	0 40	-0 41
13:29:46	51 75	3 89	6 57	99 84	1378 11	23 97	12 81	0 74	0 40	-0 44
13:30:16	50 90	4 28	7 42	101 81	1322 44	23 87	13 40	0 84	0 40	-0 45
13:30:46	51 44	4 31	7 40	100 05	1309 10	23 71	13 40	0 84	0 39	-0 41
13:31:16	49 42	4 28	7 53	98 48	1310 71	23 25	13 29	0 75	0 40	-0 38

SARNIA OXIDANT STUDY
7 JULY 84
FLIGHT 01
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
10:00:23	25 53	15 17	12 74	29 71	890 87	14 74	7 81	0 43	0 39	-0 25
10:00:53	25 91	15 12	12 05	29 09	923 87	14 45	4 89	0 43	0 39	2 59
10:01:23	25 70	14 24	11 94	29 90	943 83	14 29	7 02	0 43	0 39	12 44
10:01:53	25 72	13 50	12 19	30 13	984 57	14 21	4 83	0 42	0 37	12 34
10:02:23	25 79	12 41	11 42	30 34	919 47	14 44	7 07	0 43	0 37	12 42
10:02:53	25 72	11 94	11 02	29 84	882 07	14 58	7 00	0 44	0 35	12 20
10:03:23	25 18	11 70	10 25	30 18	814 43	14 78	7 29	0 44	0 39	12 57
10:03:53	24 82	10 95	9 82	29 75	857 13	14 55	7 23	0 45	0 37	12 40
10:04:23	24 38	10 40	9 54	29 75	885 73	14 30	7 37	0 43	0 38	12 01
10:04:53	24 12	10 14	9 54	29 55	847 40	14 42	7 49	0 42	0 38	12 25
10:05:23	23 75	9 48	8 80	29 55	891 40	14 37	7 44	0 43	0 34	11 44
10:05:53	23 45	9 58	9 08	28 25	894 53	14 48	7 44	0 41	0 39	11 40
10:06:23	24 34	9 47	8 49	28 94	907 37	14 58	7 44	0 40	0 37	11 49
10:06:53	25 02	8 30	8 48	27 52	1030 93	14 19	7 43	0 41	0 38	11 29
10:07:23	24 19	7 91	8 49	24 45	1148 07	13 44	7 54	0 42	0 37	11 07
10:07:53	25 19	7 74	7 81	24 53	1303 00	13 37	7 37	0 40	0 39	11 34
10:08:23	24 45	7 43	7 44	24 33	1488 53	13 11	4 34	0 40	0 38	11 18
10:08:53	29 14	7 44	7 07	27 71	1583 13	13 04	5 93	0 41	0 38	11 38
10:09:23	29 21	7 42	7 31	30 40	1588 17	13 28	5 92	0 42	0 37	11 52
10:09:53	29 54	7 24	4 85	31 34	1597 07	13 52	5 88	0 42	0 39	11 40
10:10:23	29 15	7 42	4 93	32 47	1612 83	13 54	5 99	0 43	0 38	11 53
10:10:53	30 07	7 42	4 48	32 35	1605 50	13 41	5 22	0 44	0 38	11 43
10:11:23	29 85	7 38	4 43	32 12	1594 87	13 54	5 73	0 44	0 40	11 54
10:11:53	29 80	7 31	4 54	32 08	1580 57	13 82	5 34	0 42	0 38	11 73
10:12:23	30 53	7 28	4 85	32 35	1600 73	13 43	5 32	0 40	0 39	11 02
10:12:53	30 70	7 03	7 17	35 11	1609 53	13 39	5 38	0 39	0 39	10 50
10:13:23	30 28	4 75	7 00	34 81	1554 17	13 48	5 43	0 39	0 38	11 40
10:13:53	30 38	7 00	4 71	31 39	1581 30	13 31	5 35	0 39	0 37	11 22
10:14:23	30 57	4 75	4 50	30 43	1583 87	13 17	5 12	0 39	0 39	10 55
10:14:53	30 94	7 00	4 50	30 59	1543 33	13 18	5 15	0 39	0 37	11 04
10:15:23	30 17	7 00	4 29	30 67	1602 20	13 04	5 45	0 39	0 39	10 81
10:15:53	27 98	4 93	4 40	30 51	1617 40	12 88	4 57	0 37	0 39	11 25
10:16:23	24 42	7 21	4 34	31 39	1584 40	12 90	4 74	0 37	0 38	11 19
10:16:53	24 03	7 35	4 50	30 82	1616 50	12 74	7 08	0 38	0 37	11 05
10:17:23	25 40	7 07	4 57	30 59	1589 00	12 73	7 05	0 38	0 39	11 24
10:17:53	25 24	7 38	4 44	29 47	1592 30	12 51	7 04	0 38	0 39	11 19
10:18:23	25 47	7 42	4 48	30 34	1607 33	12 35	4 77	0 39	0 37	10 99
10:18:53	25 52	7 21	7 03	31 59	1573 40	12 43	4 70	0 39	0 39	11 18
10:19:23	25 57	7 00	4 89	44 80	1600 37	12 38	4 48	0 39	0 37	10 97
10:19:53	25 52	4 44	4 71	52 43	1582 77	12 29	4 70	0 38	0 38	10 45
10:20:23	25 92	4 54	4 54	53 93	1578 00	12 33	4 70	0 38	0 37	10 90
10:20:53	24 23	4 25	4 47	54 43	1574 90	12 31	4 59	0 38	0 39	10 49
10:21:23	24 33	4 08	4 78	54 44	1591 20	12 31	4 58	0 38	0 39	10 90
10:21:53	24 45	4 43	4 78	55 05	1591 93	12 42	4 52	0 37	0 40	10 49
10:22:23	27 35	4 34	4 32	57 31	1590 83	12 53	4 31	0 37	0 39	10 94
10:22:53	27 47	4 47	4 18	57 31	1584 40	12 43	4 42	0 34	0 39	10 24
10:23:23	27 25	4 40	4 54	40 87	1623 47	12 59	4 43	0 37	0 39	10 40
10:23:53	27 17	4 41	4 50	42 25	1609 90	12 84	4 39	0 34	0 39	10 41
10:24:23	27 84	4 04	4 32	40 80	1585 33	12 98	4 08	0 34	0 39	10 54
10:24:53	27 74	5 83	4 40	42 25	1624 03	12 94	4 25	0 34	0 39	10 44
10:25:23	28 44	5 74	4 34	44 05	1589 37	13 14	4 80	0 38	0 37	10 77
10:25:53	28 93	5 58	4 18	43 98	1597 43	13 19	4 80	0 37	0 41	10 99
10:26:23	29 19	4 01	5 94	44 59	1579 47	13 22	5 81	0 37	0 40	10 94

BARNIA OXIDANT STUDY
7 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
10 53 23	32 15	5 19	5 24	77 78	1447 30	14 47	5 80	0 37	0 37	9 82
10 53 53	32 49	5 19	5 12	77 85	1597 43	14 58	5 42	0 37	0 39	10 00
10 54 23	33 17	5 24	5 05	80 00	1439 23	14 57	5 51	0 34	0 39	9 90
10 54 53	33 40	5 23	4 49	80 58	1595 40	14 44	5 37	0 34	0 41	10 11
10 55 23	33 41	5 02	4 88	79 04	1410 43	14 45	5 21	0 34	0 41	9 83
10 55 53	33 44	5 05	4 70	78 20	1400 37	14 27	5 31	0 35	0 40	9 52
10 56 23	33 35	4 52	4 52	78 12	1438 13	14 42	5 55	0 35	0 41	9 52
10 56 53	33 18	4 88	4 24	78 14	1597 80	14 44	5 30	0 35	0 40	9 64
10 57 23	32 49	5 09	4 31	77 89	1442 53	14 32	5 41	0 35	0 41	9 50
10 57 53	32 21	4 81	4 73	78 08	1580 20	14 51	5 11	0 35	0 39	9 49
10 58 23	32 03	4 59	4 59	77 51	1423 47	14 35	5 48	0 35	0 39	9 53
10 58 53	31 84	4 54	5 02	78 24	1408 07	14 30	5 09	0 34	0 39	9 93
10 59 23	31 55	5 09	5 14	78 08	1590 83	14 21	4 92	0 35	0 39	9 91
10 59 53	31 23	5 34	5 12	74 74	1594 87	14 18	5 39	0 33	0 37	9 79
11 00 23	31 11	5 34	4 44	78 08	1594 33	14 08	5 24	0 33	0 38	10 23
11 00 53	31 59	5 24	4 35	74 09	1414 30	14 08	4 70	0 34	0 38	4 47
11 01 23	31 93	4 95	4 31	77 85	1425 47	14 23	5 21	0 33	0 37	2 74
11 01 53	32 18	4 44	4 45	78 39	1439 40	14 14	4 70	0 33	0 40	2 74
11 02 23	32 15	5 24	4 38	78 01	1430 07	14 07	5 05	0 37	0 39	2 74
11 02 53	32 27	14 34	4 28	78 70	1405 13	14 42	5 01	0 37	0 40	3 33
11 03 23	32 27	4 88	4 52	79 92	1409 53	14 57	5 03	0 37	0 39	3 42
11 03 53	32 13	4 77	4 81	79 92	1594 13	14 59	5 05	0 38	0 39	3 37
11 04 23	31 70	4 42	4 45	79 50	1415 03	14 51	5 03	0 38	0 35	3 24
11 04 53	31 50	4 59	4 35	79 00	1592 30	14 47	4 88	0 39	0 38	3 27
11 05 23	31 43	4 73	4 35	79 54	1415 03	14 50	5 27	0 38	0 41	3 15
11 05 53	31 34	4 81	4 28	79 49	1407 70	14 43	4 85	0 38	0 40	2 97
11 06 23	30 92	4 84	4 42	78 43	1594 13	14 41	5 15	0 38	0 41	2 82
11 06 53	30 68	5 02	5 14	82 42	1591 93	14 39	5 24	0 38	0 39	2 81
11 07 23	30 51	5 14	5 24	84 14	1581 30	14 29	4 93	0 38	0 41	2 71
11 07 53	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 08 23	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 08 53	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 09 03	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 09 33	29 92	5 19	4 54	85 02	1435 00	14 47	5 78	0 37	0 37	1 71
11 10 03	30 07	4 52	4 59	84 29	1441 40	14 77	5 54	0 39	0 40	-0 33
11 10 33	30 04	4 70	5 30	85 90	1422 53	14 84	5 03	0 42	0 40	-0 04
11 11 03	28 93	4 54	4 11	87 28	1445 27	14 78	5 19	0 44	0 40	5 85
11 11 33	27 81	5 23	4 40	87 25	1424 37	14 83	5 08	0 52	0 37	9 46
11 12 03	26 44	5 30	4 94	89 14	1444 37	14 81	5 52	0 48	0 38	9 52
11 12 33	23 31	5 34	8 27	92 27	1423 43	14 83	5 40	0 52	0 41	9 43
11 13 03	23 80	5 79	9 47	94 87	1435 73	14 74	5 28	0 42	0 39	9 34
11 13 33	22 93	4 34	9 45	97 98	1420 33	14 72	5 44	0 42	0 39	9 31
11 14 03	27 22	4 57	8 90	94 53	1427 30	14 70	5 47	0 38	0 39	9 50
11 14 33	29 43	5 72	7 28	90 43	1422 90	14 54	5 42	0 37	0 40	9 26
11 15 03	29 43	5 24	4 43	89 01	1428 77	14 54	5 75	0 38	0 41	9 54
11 15 33	29 44	4 77	4 29	88 82	1427 47	14 49	5 85	0 38	0 41	9 81
11 16 03	29 24	4 54	5 79	88 89	1428 40	14 42	5 74	0 41	0 39	9 78
11 16 33	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 17 17	29 97	4 84	4 43	91 12	1431 33	14 35	5 46	0 43	0 44	10 08
11 17 47	30 12	4 54	4 43	91 94	1447 47	14 42	5 84	0 43	0 40	10 17
11 18 17	30 34	4 44	4 48	91 54	1418 50	14 41	5 70	0 47	0 44	10 04
11 18 47	30 09	4 63	4 40	91 45	1434 27	14 26	5 94	0 47	0 43	9 94
11 19 17	30 70	4 70	4 40	92 19	1433 90	14 35	5 59	0 51	0 38	9 49

SARNIA OXIDANT STUDY
7 JULY 84
FLIGHT 01
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
11:19:47	30 97	4 95	4 43	92 08	1444 17	14 34	5 80	0 54	0 39	9 94
11:20:17	31 70	5 24	4 15	91 81	1432 80	14 53	5 50	0 44	0 39	9 82
11:20:47	32 18	5 23	5 55	90 27	1451 13	14 58	5 43	0 38	0 39	9 74
11:21:17	32 13	4 88	5 34	90 58	1439 03	14 42	5 58	0 38	0 38	9 71
11:21:47	32 28	4 91	5 24	89 89	1428 03	14 59	5 43	0 38	0 37	9 94
11:22:17	32 27	4 38	5 19	89 78	1444 17	14 59	5 20	0 37	0 42	9 78
11:22:47	32 40	3 89	4 84	89 28	1441 40	14 48	5 87	0 39	0 39	9 37
11:23:17	32 20	3 89	4 77	91 35	1431 33	14 40	5 48	0 38	0 38	9 41
11:23:47	31 99	4 13	4 54	91 23	1433 53	14 41	5 83	0 38	0 41	9 52
11:24:17	31 57	4 45	4 45	90 01	1451 50	14 30	4 23	0 37	0 39	9 48
11:24:47	31 30	4 77	4 91	90 01	1442 70	14 40	5 82	0 39	0 40	9 44
11:25:17	32 15	4 54	4 49	90 04	1448 57	14 19	5 91	0 38	0 41	9 37
11:25:47	31 47	4 24	4 44	90 54	1431 33	14 25	4 11	0 37	0 39	9 44
11:26:17	31 47	4 03	4 52	90 35	1431 33	14 04	4 18	0 38	0 41	9 93
11:26:47	31 23	4 20	4 31	90 44	1436 83	14 09	4 21	0 38	0 37	9 49
11:27:17	31 34	4 04	4 63	89 81	1445 27	14 03	4 34	0 38	0 42	9 43
11:27:47	31 43	4 10	4 52	89 97	1420 70	14 03	4 25	0 39	0 39	9 81
11:28:17	30 85	4 49	4 43	90 58	1443 07	13 99	4 84	0 38	0 41	9 44
11:28:47	31 31	4 42	4 20	91 31	1440 87	14 02	4 42	0 38	0 41	9 54
11:29:17	30 89	4 52	4 24	90 93	1454 80	14 00	4 81	0 38	0 39	9 40
11:29:47	30 55	4 95	4 91	91 88	1441 97	14 05	4 78	0 38	0 40	9 99
11:30:17	30 74	4 52	5 05	91 54	1452 97	13 93	4 78	0 38	0 41	9 80
11:30:47	31 01	4 42	4 59	91 27	1455 98	13 97	4 70	0 40	0 40	9 84
11:31:17	31 19	4 28	4 81	91 27	1432 43	14 08	4 74	0 40	0 40	9 94
11:31:47	31 30	4 28	5 05	92 23	1444 00	13 89	4 74	0 40	0 39	9 49
11:32:17	31 40	4 28	4 45	92 11	1444 53	13 89	4 40	0 41	0 41	9 78
11:32:47	31 42	4 38	4 59	92 34	1445 27	13 94	4 43	0 40	0 38	10 01
11:33:17	30 97	4 70	4 63	92 42	1435 08	13 90	7 00	0 39	0 39	9 90
11:33:47	31 14	4 44	4 49	92 19	1449 47	13 88	4 87	0 40	0 40	9 92
11:34:17	30 85	4 38	4 35	92 23	1457 00	13 84	4 75	0 41	0 39	10 02
11:34:47	31 30	4 35	4 52	92 11	1443 07	13 84	4 43	0 40	0 39	10 14
11:35:17	30 80	4 52	4 95	92 57	1440 87	13 75	4 74	0 42	0 42	9 45
11:35:47	30 38	4 42	4 45	95 44	1443 43	13 80	7 10	0 40	0 41	9 81
11:36:17	30 31	4 38	4 38	95 41	1445 27	13 89	4 84	0 39	0 43	9 48
11:36:47	30 12	4 31	4 54	94 91	1443 43	13 77	7 33	0 40	0 41	9 25
11:37:17	30 45	4 35	4 91	94 22	1440 30	13 92	4 57	0 41	0 42	9 29
11:37:47	30 68	4 91	4 91	92 77	1436 47	14 04	7 04	0 41	0 41	9 27
11:38:17	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:38:47	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:39:17	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:39:47	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:40:17	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:40:47	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:41:17	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:41:47	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:42:17	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:42:47	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:43:17	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:43:47	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:44:17	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11:44:38	30 33	4 84	4 31	94 15	1427 30	13 70	7 14	0 38	0 39	9 01
11:45:08	30 41	4 17	4 35	94 38	1415 20	13 74	4 99	0 38	0 40	9 25
11:45:38	30 40	4 20	4 35	94 34	1424 57	13 69	7 12	0 38	0 42	9 24

SARMA OXIDANT STUDY
7 JULY 84
FLIGHT 01
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
12:12:30	29.12	4.17	4.17	93.72	1329.77	14.44	5.87	0.34	0.40	9.15
12:13:00	28.97	4.24	4.20	92.11	1355.80	14.37	5.70	0.33	0.41	9.34
12:13:30	29.34	4.03	4.35	92.34	1377.43	14.45	5.35	0.34	0.39	9.24
12:14:00	29.12	4.31	4.20	92.50	1379.27	14.43	5.20	0.35	0.41	9.18
12:14:30	29.40	4.13	4.13	92.04	1373.77	14.71	5.20	0.33	0.42	9.37
12:15:00	29.40	4.04	4.20	91.77	1383.30	14.74	5.50	0.34	0.43	9.55
12:15:30	29.94	4.04	4.20	91.73	1380.73	14.90	5.39	0.33	0.41	9.44
12:16:00	30.04	3.78	4.17	91.44	1385.50	15.01	5.10	0.33	0.41	9.59
12:16:30	30.80	3.44	4.35	92.50	1370.83	15.18	5.27	0.34	0.40	10.03
12:17:00	32.04	3.60	4.31	92.73	1381.10	15.15	5.20	0.38	0.39	10.15
12:17:30	32.27	4.04	4.35	93.42	1358.37	15.22	5.20	0.38	0.41	9.94
12:18:00	33.13	4.24	4.54	93.38	1375.97	15.14	5.55	0.39	0.40	9.44
12:18:30	33.15	4.28	4.43	93.23	1347.17	15.13	5.12	0.39	0.40	9.92
12:19:00	33.23	4.44	4.38	93.74	1353.40	15.12	5.42	0.38	0.41	9.82
12:19:30	33.04	4.35	4.35	92.80	1359.10	15.08	5.34	0.35	0.40	9.24
12:20:00	32.67	4.42	4.59	91.50	1358.73	15.10	5.28	0.37	0.39	9.24
12:20:30	32.55	4.24	4.43	91.81	1354.90	15.05	5.52	0.34	0.41	9.19
12:21:00	32.35	3.92	4.31	91.44	1382.93	15.07	5.71	0.35	0.41	9.24
12:21:30	31.47	4.28	4.31	92.73	1371.20	15.15	5.50	0.34	0.39	9.25
12:22:00	31.59	4.28	4.42	93.24	1377.07	15.21	5.44	0.33	0.39	9.42
12:22:30	30.45	4.24	4.35	93.23	1372.47	15.24	5.24	0.32	0.44	9.42
12:23:00	29.09	3.92	4.81	94.03	1389.53	15.11	5.44	0.37	0.40	9.93
12:23:30	29.05	4.10	5.24	93.84	1337.47	15.13	5.28	0.37	0.41	9.57
12:24:00	29.32	4.20	5.23	93.03	1354.17	15.01	5.53	0.34	0.42	9.24
12:24:30	30.19	4.35	5.58	92.57	1378.53	14.99	5.45	0.38	0.41	9.22
12:25:00	30.17	4.38	5.24	92.38	1354.17	15.09	5.24	0.38	0.43	9.22
12:25:30	30.48	4.59	5.14	91.94	1379.43	15.02	5.09	0.37	0.41	9.19
12:26:00	31.45	4.44	5.24	91.73	1377.43	15.05	5.08	0.35	0.42	9.21
12:26:30	32.25	4.28	5.19	91.73	1384.23	15.05	5.01	0.35	0.41	9.42
12:27:00	32.44	4.04	4.70	92.49	1379.43	15.15	5.19	0.34	0.42	9.80
12:27:30	32.57	3.82	4.45	92.92	1391.73	15.22	5.11	0.38	0.42	9.57
12:28:00	32.03	3.94	4.59	92.42	1359.83	15.37	4.19	0.39	0.41	9.31
12:28:30	32.32	4.35	4.77	91.42	1383.47	15.25	4.83	0.38	0.40	9.14
12:29:00	33.10	4.10	4.44	91.44	1367.53	15.24	4.72	0.37	0.39	9.01
12:29:30	33.34	4.04	4.38	92.41	1395.40	15.13	5.74	0.35	0.41	9.17
12:30:00	33.32	3.34	4.49	93.15	1371.20	15.14	5.48	0.34	0.41	9.13
12:30:30	33.85	3.18	4.49	93.38	1370.47	15.14	5.34	0.33	0.39	9.04
12:31:00	34.24	3.18	4.35	93.07	1354.53	15.18	5.27	0.33	0.43	8.94
12:31:30	34.70	3.18	4.38	92.27	1391.00	15.12	5.41	0.34	0.43	8.89
12:32:00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00
12:32:30	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00
12:33:00	34.90	3.25	4.38	93.88	1379.43	15.47	5.28	0.37	0.43	9.19
12:33:30	34.93	3.32	4.17	94.57	1411.17	15.52	5.49	0.38	0.41	9.50
12:34:00	34.49	3.39	4.28	94.74	1377.43	15.44	4.94	0.39	0.41	9.71
12:34:30	34.17	3.44	4.13	95.33	1404.57	15.41	5.24	0.38	0.42	9.52
12:35:00	34.14	3.71	4.42	94.99	1359.83	15.43	5.13	0.38	0.40	9.44
12:35:30	33.80	3.40	4.20	94.87	1387.70	15.37	5.15	0.39	0.43	9.37
12:36:00	33.74	3.47	4.20	93.95	1349.73	15.42	5.38	0.38	0.41	9.20
12:36:30	33.91	3.29	4.03	93.41	1371.20	15.35	5.45	0.39	0.43	9.34
12:37:00	33.84	3.75	4.13	92.34	1404.77	15.43	5.54	0.39	0.43	9.34
12:37:30	33.44	3.85	4.31	93.74	1350.30	15.54	5.37	0.43	0.42	9.52
12:38:00	32.52	3.71	4.24	92.94	1392.10	15.30	5.80	0.44	0.40	9.55
12:38:30	30.84	3.94	5.09	94.30	1349.37	15.32	5.44	0.44	0.42	9.32

SARNIA OXIDANT STUDY
7 JULY 84
FLIGHT 8-1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
13:05:47	30.77	5.23	7.42	75.32	1462.50	15.39	5.19	0.41	0.41	-0.36
13:06:17	31.43	4.38	6.75	72.22	1488.90	15.33	5.54	0.40	0.41	-0.38
13:06:47	31.40	4.49	6.78	72.83	1472.03	15.48	5.09	0.44	0.42	-0.45
13:07:17	30.43	5.09	7.38	72.72	1470.20	15.59	5.04	0.43	0.42	-0.36
13:07:47	31.14	5.12	7.17	72.22	1458.10	15.64	5.10	0.41	0.41	-0.36
13:08:17	31.48	5.19	7.17	71.41	1480.83	15.64	4.84	0.40	0.41	-0.35
13:08:47	31.02	4.77	7.17	70.49	1452.97	15.64	4.88	0.43	0.42	-0.38
13:09:17	29.78	4.42	7.35	68.19	1487.43	15.51	4.97	0.43	0.43	-0.36
13:09:47	29.34	4.35	7.38	70.30	1490.73	15.64	4.59	0.44	0.41	-0.36
13:10:17	28.34	4.70	7.47	70.45	1482.47	15.71	5.12	0.45	0.40	-0.32
13:10:47	27.00	4.73	8.44	70.44	1495.13	15.73	5.08	0.47	0.42	-0.42
13:11:17	25.35	4.73	9.84	73.02	1482.30	15.78	5.08	0.46	0.43	-0.38
13:11:47	25.77	4.63	10.78	76.72	1488.90	15.88	5.18	0.47	0.41	-0.33
13:12:17	29.89	4.81	10.03	70.19	1482.47	16.03	4.84	0.42	0.41	-0.34
13:12:47	34.29	4.35	8.23	68.49	1448.20	16.11	4.49	0.38	0.41	-0.36
13:13:17	35.34	4.28	7.28	67.24	1485.60	16.08	5.00	0.38	0.43	-0.38
13:13:47	35.34	4.52	6.40	64.47	1470.20	16.12	5.12	0.37	0.42	-0.37
13:14:17	34.93	4.24	5.62	65.86	1483.40	16.20	5.44	0.37	0.40	-0.33
13:14:47	35.17	4.10	5.24	66.35	1469.83	16.27	5.43	0.38	0.42	-0.39
13:15:17	35.51	3.75	5.34	67.88	1489.43	16.32	5.09	0.38	0.42	-0.38
13:15:47	35.85	3.39	5.37	67.94	1455.90	16.36	5.12	0.37	0.41	-0.38
13:16:17	34.23	3.32	4.98	70.15	1470.57	16.23	4.79	0.38	0.41	-0.37
13:16:47	35.77	3.22	4.38	73.91	1465.07	16.22	5.13	0.37	0.41	-0.37
13:17:17	36.14	3.11	4.52	74.04	1457.73	16.24	5.22	0.37	0.43	-0.38
13:17:47	34.02	2.51	4.31	74.67	1453.33	16.23	5.25	0.37	0.40	-0.33
13:18:17	35.33	2.93	4.49	75.17	1463.97	16.12	5.53	0.34	0.42	-0.34
13:18:47	34.80	3.04	4.52	74.71	1491.47	16.11	5.45	0.37	0.42	-0.32
13:19:17	35.87	3.07	3.99	74.56	1494.23	16.21	4.84	0.36	0.41	-0.31
13:19:47	35.65	3.18	4.20	74.86	1484.13	16.25	5.21	0.36	0.41	-0.35
13:20:17	35.68	3.25	4.24	77.70	1504.47	16.35	5.04	0.35	0.42	-0.33
13:20:47	36.33	3.14	4.35	78.05	1491.83	16.50	4.32	0.35	0.41	-0.37
13:21:17	36.12	3.14	3.60	78.39	1466.17	16.58	4.74	0.34	0.40	-0.35
13:21:47	35.92	2.74	4.24	77.74	1474.07	16.49	4.84	0.37	0.41	-0.40
13:22:17	35.94	2.40	4.63	77.32	1477.90	16.45	5.14	0.34	0.43	-0.37
13:22:47	36.07	2.97	5.19	77.28	1468.73	16.50	4.97	0.37	0.41	-0.38
13:23:17	36.14	2.90	5.09	74.59	1461.03	16.51	4.90	0.36	0.41	-0.37
13:23:47	35.90	3.07	4.73	75.78	1478.43	16.39	4.99	0.37	0.41	-0.37
13:24:17	36.01	2.90	4.77	75.29	1459.93	16.51	4.85	0.37	0.41	-0.36
13:24:47	36.45	3.07	4.45	74.78	1463.60	16.53	4.54	0.37	0.41	-0.34
13:25:17	36.41	3.25	4.28	74.36	1474.80	16.45	4.53	0.36	0.40	-0.38
13:25:47	36.44	3.18	3.75	74.63	1444.33	16.44	4.51	0.35	0.40	-0.34
13:26:17	36.80	2.97	3.29	75.78	1468.00	16.49	4.82	0.34	0.41	-0.36
13:26:47	37.16	3.22	3.50	75.78	1492.20	16.51	5.04	0.37	0.39	-0.37
13:27:17	37.54	3.22	3.60	74.47	1446.00	16.47	4.75	0.36	0.39	-0.33
13:27:47	37.99	3.25	4.24	75.90	1482.30	16.47	4.44	0.36	0.42	-0.37
13:28:17	37.98	3.22	4.31	74.55	1495.13	16.83	4.50	0.34	0.43	-0.33
13:28:47	37.08	3.53	5.30	78.01	1461.03	17.03	4.37	0.34	0.39	-0.35
13:29:17	36.62	4.17	5.34	78.28	1490.73	16.87	4.53	0.36	0.43	-0.38
13:29:47	36.92	4.31	5.34	78.89	1507.97	17.01	4.80	0.36	0.44	-0.36
13:30:17	36.96	3.64	4.77	79.73	1471.67	17.15	4.32	0.36	0.42	-0.36
13:30:47	37.03	3.71	4.38	79.77	1447.83	16.96	3.84	0.36	0.41	-0.39
13:31:17	36.82	3.22	4.45	78.97	1474.60	16.60	4.27	0.36	0.43	-0.34
13:31:47	36.53	3.50	4.28	77.85	1477.53	16.59	4.53	0.37	0.42	-0.37

SARNIA OXIDANT STUDY
7 JULY 84
FLIGHT 01
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
13:58:47	33 80	3 25	3 22	75 09	1599 43	14 35	4 94	0 35	0 43	-0 30
13:59:17	14 03	3 18	2 90	54 02	1452 07	14 50	4 87	0 35	0 41	-0 12
13:59:47	3 31	1 77	2 01	19 32	1540 03	17 03	4 87	0 33	0 43	-0 15

SARNIA OXIDANT STUDY
8 JULY 84
FLIGHT 81
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
09:41:57	32.61	4.54	5.34	44.24	1395.27	18.53	3.74	0.40	31.62	9.82
09:42:27	32.93	4.31	5.23	47.47	1420.57	18.49	3.53	0.30	31.59	9.73
09:42:57	33.18	4.20	5.12	48.12	1400.10	18.50	3.43	0.37	31.61	9.61
09:43:27	33.03	4.24	5.24	48.49	1387.57	18.70	4.09	0.38	31.67	9.83
09:43:57	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00
09:44:11	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00
09:44:41	32.84	4.95	4.49	47.20	1381.70	18.49	4.21	0.38	3.11	9.38
09:45:11	33.05	4.42	4.38	47.35	1391.97	18.31	4.42	0.37	3.14	9.47
09:45:41	31.50	4.35	4.54	46.78	1394.17	18.12	4.02	0.39	3.14	9.83
09:46:11	32.04	4.17	5.02	44.35	1400.77	18.09	5.35	0.38	3.04	9.77
09:46:41	32.10	4.13	5.12	47.08	1409.57	18.12	5.32	0.39	3.12	9.72
09:47:11	30.89	4.20	5.24	48.54	1418.37	18.03	4.10	0.40	3.11	9.87
09:47:41	31.43	4.45	5.37	49.42	1418.73	18.19	5.95	0.41	3.13	10.19
09:48:11	30.12	5.12	5.97	70.19	1404.43	18.24	4.27	0.43	3.08	9.94
09:48:41	30.62	4.88	6.08	71.43	1412.13	18.22	4.44	0.43	3.13	9.84
09:49:11	32.21	4.59	4.15	70.41	1404.43	18.33	5.40	0.41	3.04	9.94
09:49:41	33.54	4.31	4.25	48.04	1415.43	18.40	5.27	0.40	3.09	9.81
09:50:11	34.97	4.44	4.11	70.41	1424.07	18.39	4.23	0.42	3.10	9.88
09:50:41	34.41	4.43	4.01	71.22	1404.43	18.53	5.50	0.41	3.04	9.83
09:51:11	35.51	4.24	5.72	71.15	1398.57	18.43	4.93	0.45	3.18	9.74
09:51:41	34.58	4.24	5.41	71.41	1401.87	18.47	4.82	0.42	2.94	9.71
09:52:11	35.02	4.31	5.48	74.37	1404.43	18.38	4.38	0.44	3.17	9.75
09:52:41	39.78	4.42	5.37	74.47	1424.43	18.30	4.48	0.49	3.19	9.43
09:53:11	44.57	5.02	5.45	75.21	1421.47	18.48	4.94	0.57	3.17	9.44
09:53:41	53.21	5.30	4.48	77.51	1417.27	18.54	4.67	1.02	3.43	9.54
09:54:11	39.73	4.11	10.44	82.22	1429.00	18.44	4.32	1.10	3.21	9.44
09:54:41	27.00	8.73	13.51	82.45	1420.20	18.80	4.97	0.54	3.05	9.83
09:55:11	30.45	7.99	13.92	81.49	1424.23	18.92	5.19	0.54	3.12	9.55
09:55:41	34.12	7.10	12.81	81.53	1410.30	18.97	4.84	0.51	3.25	9.42
09:56:11	41.92	4.18	11.24	84.18	1409.57	19.01	4.98	0.41	3.37	9.59
09:56:41	32.88	7.00	13.47	89.85	1413.60	19.07	4.59	0.57	3.28	9.49
09:57:11	29.83	4.57	12.97	92.08	1422.77	19.08	4.47	0.54	3.19	9.51
09:57:41	27.54	4.32	12.54	94.25	1424.97	19.13	4.21	0.70	3.17	9.74
09:58:11	30.23	5.74	10.44	84.47	1432.30	19.14	3.74	0.48	3.07	9.88
09:58:41	31.09	5.37	8.48	80.12	1408.83	19.12	4.84	0.40	3.10	9.90
09:59:11	31.47	4.54	7.31	77.93	1409.57	19.08	4.34	0.40	3.07	9.71
09:59:41	31.94	4.20	4.57	75.78	1388.30	19.07	4.71	0.39	3.09	9.52
10:00:11	31.70	4.10	4.50	74.98	1409.57	19.07	4.44	0.37	3.07	9.57
10:00:41	31.93	4.28	4.11	74.29	1405.53	19.13	4.54	0.37	3.08	9.23
10:01:11	31.47	4.20	5.90	75.21	1435.40	19.10	4.70	0.40	3.11	8.94
10:01:41	32.08	3.71	5.97	74.54	1391.97	19.19	4.45	0.40	3.08	9.29
10:02:11	32.44	3.57	5.72	75.40	1414.17	19.13	4.42	0.39	3.10	9.25
10:02:41	32.01	3.75	5.51	75.43	1405.17	19.17	4.60	0.40	3.07	9.43
10:03:11	32.84	4.04	4.91	74.32	1433.77	19.20	4.21	0.40	3.08	9.37
10:03:41	32.44	3.78	4.28	74.74	1412.13	19.33	4.25	0.38	3.04	9.54
10:04:11	32.49	3.47	4.10	74.97	1444.40	19.24	4.37	0.37	3.04	9.20
10:04:41	33.93	3.94	4.28	74.21	1502.70	18.94	3.87	0.34	3.03	9.10
10:05:11	33.57	4.28	4.20	74.83	1587.77	18.83	3.98	0.34	3.10	8.81
10:05:41	32.76	4.35	4.35	77.28	1410.13	18.99	4.55	0.35	3.13	9.17
10:06:11	32.38	4.35	4.28	79.04	1413.07	18.74	4.79	0.38	3.11	9.24
10:06:41	31.14	4.38	4.73	78.54	1409.77	18.73	4.85	0.34	3.11	9.21
10:07:11	31.43	4.31	5.34	79.35	1594.37	18.72	4.55	0.34	3.10	9.12
10:07:41	30.21	4.84	5.79	78.89	1583.00	18.54	4.64	0.37	3.11	8.94

SARNIA OXIDANT STUDY
8 JULY 84
FLIGHT 81
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
11:27:30	47.31	4.77	4.11	100.97	1384.27	19.80	4.84	0.42	14.99	-0.33
11:28:00	46.40	5.14	4.29	101.54	1408.83	19.78	4.75	0.41	14.84	-0.30
11:28:30	45.44	5.19	4.75	101.12	1413.97	19.79	4.81	0.39	17.47	-0.30
11:29:00	44.91	5.24	4.43	102.08	1340.43	20.03	4.77	0.38	14.94	-0.35
11:29:30	44.25	4.84	4.41	101.54	1373.27	19.84	4.99	0.38	17.21	-0.34
11:30:00	44.35	4.81	4.78	102.39	1386.83	19.48	4.84	0.39	14.88	-0.35
11:30:30	43.91	4.35	4.57	102.14	1384.83	19.40	4.77	0.38	14.97	-0.32
11:31:00	42.11	4.17	4.22	100.93	1394.90	19.41	3.92	0.37	17.27	-0.38
11:31:30	38.39	3.92	5.41	100.32	1394.17	19.43	3.34	0.32	14.87	-0.31
11:32:00	37.91	3.40	4.43	99.74	1557.70	19.37	3.38	0.33	17.10	-0.38
11:32:30	37.98	3.18	4.35	98.32	1798.40	18.83	2.77	0.33	17.45	-0.36
11:33:00	37.14	3.22	4.17	97.98	1955.53	18.49	3.98	0.33	17.57	-0.34
11:33:30	37.23	3.22	3.85	101.31	1924.73	18.74	4.84	0.35	17.27	-0.39
11:34:00	37.43	3.11	4.04	103.12	1925.47	18.71	3.81	0.35	17.44	-0.34
11:34:30	37.57	3.14	4.04	102.54	1888.07	18.74	2.41	0.34	17.20	-0.35
11:35:00	37.84	3.18	3.75	101.97	1753.13	19.39	3.88	0.33	14.73	-0.34
11:35:30	38.39	3.22	4.17	103.19	1572.73	19.97	2.82	0.34	17.14	-0.36
11:36:00	38.25	3.40	3.53	107.03	1482.53	20.40	3.24	0.33	17.12	-0.37
11:36:30	38.50	3.32	3.22	105.34	1444.03	20.55	3.78	0.33	14.62	-0.35
11:37:00	39.01	3.25	3.50	104.34	1371.43	20.58	3.87	0.34	14.83	-0.34
11:37:30	39.54	3.32	4.24	103.19	1375.10	20.44	5.04	0.35	17.17	-0.34
11:38:00	39.88	3.14	4.45	102.92	1312.77	20.32	5.02	0.35	14.85	-0.34
11:38:30	38.47	3.04	4.45	101.89	1374.37	20.24	4.48	0.39	14.99	-0.35
11:39:00	38.04	3.50	4.88	102.23	1374.37	20.33	4.91	0.35	17.43	-0.34
11:39:30	34.59	4.31	5.74	103.58	1348.13	20.38	4.54	0.34	14.95	-0.31
11:40:00	28.90	5.48	8.44	109.25	1394.00	20.14	4.44	0.33	14.99	-0.41
11:40:30	27.95	4.50	10.28	111.20	1340.07	20.30	4.20	0.33	17.45	-0.36
11:41:00	27.83	7.38	12.01	112.24	1397.83	20.32	4.74	0.33	17.31	-0.37
11:41:30	25.55	7.91	13.85	115.38	1352.73	20.41	4.84	0.33	17.15	-0.41
11:42:00	25.35	8.73	14.91	115.31	1394.37	20.17	5.11	0.34	17.53	-0.32
11:42:30	24.37	8.49	14.88	114.15	1345.10	20.24	5.52	0.35	17.55	-0.42
11:43:00	27.42	8.04	14.80	113.58	1378.03	20.28	5.04	0.38	17.22	-0.42
11:43:30	29.27	7.42	13.43	112.28	1342.27	20.19	4.83	0.38	17.58	-0.34
11:44:00	30.51	7.21	12.12	111.01	1375.47	20.23	4.44	0.34	17.45	-0.37
11:44:30	31.42	4.71	10.81	111.78	1340.07	20.23	4.75	0.34	17.54	-0.35
11:45:00	35.72	5.42	9.33	108.90	1388.30	20.24	4.72	0.34	17.57	-0.37
11:45:30	38.54	4.73	7.99	104.40	1349.07	20.32	4.57	0.34	17.81	-0.41
11:46:00	39.83	4.28	7.81	107.79	1381.70	20.24	4.14	0.34	17.39	-0.35
11:46:30	42.94	4.28	7.40	107.29	1342.43	20.22	4.38	0.40	17.23	-0.35
11:47:00	48.79	4.10	7.40	107.49	1382.07	20.20	4.44	0.43	17.41	-0.34
11:47:30	48.40	4.31	7.43	108.40	1344.47	20.25	4.87	0.43	17.51	-0.34
11:48:00	44.24	4.24	4.89	108.37	1331.47	20.22	5.89	0.40	17.34	-0.32
11:48:30	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00	-999.00
11:49:00	42.77	3.25	5.65	104.22	1259.23	20.34	5.44	0.40	17.19	-0.34
11:49:30	47.48	3.07	5.83	105.19	1347.03	20.28	5.15	0.47	17.04	-0.35
11:50:00	48.74	2.83	4.04	108.52	1410.30	20.23	4.30	0.44	17.54	-0.33
11:50:30	47.24	2.97	4.34	110.74	1399.47	20.19	4.45	0.44	17.45	-0.38
11:51:00	46.90	3.22	4.78	110.78	1431.20	20.14	4.40	0.44	17.33	-0.35
11:51:30	45.71	3.22	4.82	109.79	1383.53	20.19	3.85	0.43	17.44	-0.35
11:52:00	45.34	3.82	4.71	109.82	1445.13	20.22	3.44	0.42	17.41	-0.34
11:52:30	44.94	3.50	4.40	108.83	1434.33	20.24	3.83	0.41	17.01	-0.35
11:53:00	44.57	3.32	4.43	108.98	1459.07	20.34	3.13	0.40	17.35	-0.35
11:53:30	45.93	4.04	4.40	109.79	1432.30	20.28	3.53	0.42	17.33	-0.34

BARNIA OXIDANT STUDY
8 JULY 84
FLIGHT 0 2
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
15:48:24	57.44	3.11	7.07	07.59	2732.57	18.45	4.81	0.51	2.17	8.30
15:48:54	54.80	3.50	4.85	07.21	2570.50	19.22	4.47	0.51	1.98	8.88
15:49:24	42.27	3.29	4.54	08.40	2544.47	19.34	5.22	0.59	2.01	8.45
15:49:54	42.58	3.44	7.31	04.71	2503.40	19.30	4.81	0.57	2.08	8.07
15:50:24	42.85	3.40	7.49	03.72	2395.23	19.40	4.99	0.40	2.02	7.52
15:50:54	45.47	3.43	7.53	04.54	2333.43	19.81	5.23	0.45	2.00	8.34
15:51:24	47.15	3.18	7.40	04.52	2253.33	20.02	5.17	0.44	2.05	8.95
15:51:54	48.04	3.43	7.42	04.98	2157.43	20.21	5.44	0.49	2.00	8.74
15:52:24	48.32	2.23	8.27	03.45	2197.97	19.92	5.43	0.48	2.34	8.48
15:52:54	45.74	3.39	7.95	04.83	2134.90	20.44	5.50	0.42	2.04	8.54
15:53:24	59.42	3.44	7.95	07.05	2140.03	20.45	5.32	0.54	2.00	8.37
15:53:54	58.77	3.25	7.81	07.02	2079.53	20.87	5.39	0.51	1.95	8.41
15:54:24	53.29	2.93	8.02	05.10	2142.23	20.44	4.53	0.44	2.23	8.93
15:54:54	53.28	2.54	8.09	03.83	2141.30	20.52	5.28	0.52	2.33	8.22
15:55:24	53.42	3.22	8.27	03.74	2137.47	20.83	5.72	0.45	1.95	7.73
15:55:54	51.14	3.39	8.25	05.41	2104.47	21.02	4.98	0.43	2.03	8.14
15:56:24	48.45	3.22	8.23	05.29	2117.30	21.04	4.90	0.41	2.03	8.55
15:56:54	47.11	3.50	7.99	04.83	2104.30	21.19	4.41	0.39	1.94	8.45
15:57:24	44.41	3.78	4.85	02.11	2094.57	21.15	4.44	0.38	2.04	8.00
15:57:54	45.75	3.89	4.15	01.41	2110.78	21.21	4.44	0.37	1.99	8.15
15:58:24	45.95	3.32	5.45	79.92	2093.10	21.11	4.48	0.34	1.94	8.23
15:58:54	45.88	3.25	5.94	78.44	2080.27	21.08	4.75	0.37	2.04	8.01
15:59:24	45.95	3.57	4.15	78.28	2061.93	21.10	4.84	0.38	2.00	8.45
15:59:54	45.59	3.25	5.87	79.50	2099.78	21.09	5.02	0.34	1.97	8.33
16:00:24	47.72	3.29	5.58	81.34	2134.80	21.27	4.90	0.38	2.18	9.07
16:00:54	49.88	3.29	5.05	82.57	2102.43	21.27	4.92	0.38	1.99	7.44
16:01:24	52.04	2.79	5.02	82.99	2077.33	21.27	5.17	0.39	1.94	7.97
16:01:54	52.82	2.44	5.44	87.44	2028.28	21.19	5.39	0.38	1.97	8.14
16:02:24	54.95	2.93	5.94	85.84	2019.77	21.32	5.74	0.41	1.94	8.21
16:02:54	59.13	2.58	4.04	84.44	1848.17	21.80	5.43	0.41	1.92	8.52
16:03:24	41.42	2.33	5.87	84.10	1708.47	22.04	5.44	0.44	1.87	8.39
16:03:54	44.12	2.47	4.29	85.10	1589.47	22.31	5.90	0.45	1.94	8.49
16:04:24	43.77	3.22	4.50	84.10	1434.77	22.24	5.94	0.45	1.93	8.79
16:04:54	40.74	3.32	4.75	85.37	1425.97	22.41	5.80	0.42	1.87	8.20
16:05:24	59.82	3.43	4.43	85.79	1553.37	22.79	5.88	0.40	1.95	8.17
16:05:54	57.48	3.53	4.34	83.14	1587.47	22.83	5.74	0.40	1.89	8.54
16:06:24	53.74	3.40	4.32	84.98	1507.90	22.88	5.34	0.38	1.88	8.10
16:06:54	50.95	3.18	4.34	82.72	1554.47	22.94	5.24	0.38	1.94	8.37
16:07:24	48.48	2.51	5.74	82.19	1415.70	22.98	5.13	0.37	1.90	8.54
16:07:54	47.82	2.90	5.55	83.72	1588.57	23.08	5.14	0.38	1.92	8.27
16:08:24	47.12	2.41	5.51	82.34	1580.13	22.85	5.18	0.38	1.94	8.23
16:08:54	46.97	3.07	5.24	81.99	1557.40	22.90	5.20	0.40	1.93	8.35
16:09:24	47.57	3.18	4.47	85.98	1588.93	22.75	4.80	0.43	1.94	8.11
16:09:54	44.22	3.53	7.17	84.17	1520.00	22.91	4.74	0.40	1.98	8.40
16:10:24	44.84	4.13	8.80	84.83	1453.47	23.01	5.11	0.41	2.14	8.80
16:10:54	48.28	3.47	9.48	85.21	1778.07	22.51	5.55	0.42	2.22	9.07
16:11:24	54.00	4.24	8.59	87.82	1480.97	22.52	4.33	0.47	1.94	8.82
16:11:54	58.11	4.03	7.84	87.13	1580.50	22.41	5.94	0.48	1.91	8.32
16:12:24	59.50	3.36	7.53	84.33	1544.93	22.44	4.03	0.50	1.88	8.53
16:12:54	59.57	3.18	7.14	83.68	1410.57	22.27	4.03	0.52	1.95	7.97
16:13:24	60.49	3.18	7.31	81.30	1404.53	22.24	5.91	0.52	1.95	8.23
16:13:54	60.71	3.04	7.95	82.65	1448.33	22.27	5.91	0.53	1.89	8.57
16:14:24	61.56	3.22	7.74	85.94	1418.07	23.08	4.45	0.54	1.87	9.47

SARNIA OXIDANT STUDY
8 JULY 84
FLIGHT 8 2
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
17:34:24	47.48	2.90	4.52	84.21	1415.13	21.98	5.75	0.37	1.75	8.22
17:34:56	45.98	2.74	4.54	84.34	1415.87	22.09	5.35	0.34	1.80	8.12
17:35:24	46.41	2.93	4.31	84.25	1437.87	22.11	5.80	0.37	1.78	8.24
17:35:56	45.54	2.54	4.44	85.75	1433.47	22.14	5.29	0.35	1.77	8.21
17:36:24	44.93	2.24	4.49	84.40	1455.47	22.28	5.47	0.35	1.78	8.25
17:36:56	44.95	3.04	4.31	92.88	1430.17	22.55	5.11	0.34	1.77	8.73
17:37:24	44.91	2.97	4.10	97.21	1405.23	22.53	4.94	0.34	1.77	8.20
17:37:56	44.42	2.93	4.20	97.37	1444.30	22.40	5.34	0.37	1.78	7.84
17:38:24	44.91	2.49	3.92	97.83	1398.43	22.43	5.17	0.37	1.79	8.38
17:38:56	45.54	2.54	3.78	94.04	1401.93	22.44	4.92	0.38	1.75	8.44
17:39:24	45.07	2.74	3.22	90.47	1429.80	22.34	5.53	0.38	1.80	8.40
17:39:56	45.92	2.90	3.50	89.24	1420.43	22.37	5.34	0.38	1.79	8.21
17:40:24	44.43	3.07	3.39	87.94	1427.97	22.35	5.82	0.37	1.78	8.55
17:40:56	44.34	3.22	4.03	90.24	1435.30	22.38	5.55	0.37	1.78	8.73
17:41:24	47.47	3.32	4.24	90.35	1418.43	22.30	5.84	0.38	1.82	8.40
17:41:56	48.42	3.18	4.17	89.28	1415.13	22.14	5.73	0.38	1.80	8.10
17:42:24	48.48	2.97	4.20	87.71	1384.53	22.14	5.91	0.39	1.78	8.10
17:42:56	48.14	2.41	3.92	84.25	1347.10	22.14	5.43	0.38	1.79	8.27
17:43:24	47.12	2.33	4.28	87.48	1214.20	22.74	5.44	0.37	1.77	9.12
17:43:56	47.40	2.30	4.28	91.12	1120.70	23.12	5.25	0.38	1.81	8.89
17:44:24	46.89	2.41	4.45	88.55	944.33	23.41	5.03	0.37	1.81	9.19
17:44:56	46.44	2.23	4.31	84.33	929.30	23.40	5.27	0.37	1.79	8.74
17:45:24	44.48	2.44	3.85	84.75	950.93	23.15	5.30	0.35	1.78	8.19
17:45:56	46.43	2.24	3.75	82.91	927.10	23.21	5.40	0.35	1.78	8.45
17:46:24	46.95	2.23	3.71	82.95	942.13	23.30	5.09	0.35	1.74	8.48
17:46:56	46.21	2.51	3.50	84.83	937.37	23.43	5.01	0.34	1.79	8.23
17:47:24	45.87	2.40	3.39	84.37	945.80	23.41	5.12	0.34	1.82	7.87
17:47:56	45.75	2.24	3.18	90.35	949.83	23.41	5.11	0.34	1.80	7.45
17:48:24	45.90	2.05	3.34	95.22	944.17	23.47	5.08	0.34	1.82	7.95
17:48:56	45.70	1.98	3.44	97.52	954.40	23.50	5.13	0.34	1.82	8.53
17:49:24	45.92	2.12	3.50	98.40	950.93	23.41	5.03	0.35	1.79	8.38
17:49:56	44.80	2.12	3.34	97.98	948.73	23.49	5.20	0.34	1.78	8.29
17:50:24	47.31	2.12	3.44	98.25	949.47	23.45	5.24	0.34	1.79	8.31
17:50:56	46.82	2.24	3.22	99.24	950.20	23.58	5.53	0.37	1.77	8.13
17:51:24	47.91	2.51	3.18	99.90	947.27	23.73	5.77	0.38	1.75	8.33
17:51:56	48.72	2.74	3.25	100.13	952.03	23.97	4.42	0.38	1.77	8.43
17:52:24	51.31	2.51	3.53	99.47	953.87	24.14	4.20	0.38	1.75	8.33
17:52:56	51.58	2.30	3.89	99.34	953.50	23.97	5.84	0.39	1.74	8.29
17:53:24	51.93	2.30	4.52	100.14	944.50	23.81	4.05	0.38	1.93	8.27
17:53:56	53.34	1.77	5.19	100.43	989.07	23.43	5.95	0.38	2.10	8.40
17:54:24	52.47	1.98	5.58	100.24	994.83	23.39	4.11	0.37	2.17	8.51
17:54:56	55.90	3.34	4.73	99.51	943.97	24.00	4.22	0.43	1.81	8.70
17:55:24	58.94	2.44	4.49	99.90	977.70	23.84	4.34	0.44	1.97	8.70
17:55:56	41.71	2.05	5.05	100.43	977.70	24.00	4.45	0.49	1.90	8.29
17:56:24	42.74	2.97	5.24	101.14	944.53	24.17	4.87	0.47	1.83	8.32
17:56:56	42.13	2.72	4.08	101.97	938.10	24.14	4.83	0.47	1.83	8.25
17:57:24	42.73	2.72	5.45	101.39	945.43	24.22	4.74	0.49	1.78	8.13
17:57:56	42.43	2.84	5.65	102.23	940.47	24.30	4.83	0.44	1.82	8.09
17:58:24	43.95	3.07	4.01	103.31	971.10	24.44	7.03	0.49	1.80	8.57
17:58:56	44.94	3.07	5.23	103.45	952.77	24.88	4.87	0.50	1.77	9.17
17:59:24	44.33	3.04	5.69	103.73	935.90	24.99	7.00	0.50	1.84	8.71
17:59:56	42.70	3.25	5.45	103.54	943.23	25.04	7.44	0.50	1.82	8.49
18:00:24	41.34	3.18	6.04	103.27	942.30	24.45	7.40	0.49	1.77	8.42

SARINIA OXIDANT STUDY
13 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
9:57:00	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	46	-999.99	-999.99
9:57:30	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	49	-999.99	-999.99
9:58:00	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	76	-999.99	-999.99
9:58:30	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	49	-999.99	-999.99
9:59:00	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	70	-999.99	-999.99
9:59:30	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	71	-999.99	-999.99
10:00:00	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	70	-999.99	-999.99
10:00:30	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	48	-999.99	-999.99
10:01:00	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	49	-999.99	-999.99
10:01:30	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	71	-999.99	-999.99
10:02:00	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	70	-999.99	-999.99
10:02:30	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	72	-999.99	-999.99
10:03:00	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	70	-999.99	-999.99
10:03:30	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	48	-999.99	-999.99
10:04:00	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	70	-999.99	-999.99
10:04:30	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	75	-999.99	-999.99
10:05:00	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	81	-999.99	-999.99
10:05:30	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	88	-999.99	-999.99
10:06:00	41.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	95	-999.99	-999.99
10:06:30	43.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	95	-999.99	-999.99
10:07:00	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	1.13	-999.99	-999.99
10:07:30	40.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	1.10	-999.99	-999.99
10:08:00	47.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	1.05	-999.99	-999.99
10:08:30	50.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	1.08	-999.99	-999.99
10:09:00	50.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	1.04	-999.99	-999.99
10:09:30	49.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	71	-999.99	-999.99
10:10:00	48.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	74	-999.99	-999.99
10:10:30	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	71	-999.99	-999.99
10:11:00	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	48	-999.99	-999.99
10:11:30	43.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	60	-999.99	-999.99
10:12:00	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	40	-999.99	-999.99
10:12:30	43.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	54	-999.99	-999.99
10:13:00	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	40	-999.99	-999.99
10:13:30	43.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	42	-999.99	-999.99
10:14:00	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	48	-999.99	-999.99
10:14:30	42.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	40	-999.99	-999.99
10:15:00	38.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	42	-999.99	-999.99
10:15:30	38.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	42	-999.99	-999.99
10:16:00	39.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	52	-999.99	-999.99
10:16:30	38.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	42	-999.99	-999.99
10:17:00	39.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	48	-999.99	-999.99
10:17:30	39.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	49	-999.99	-999.99
10:18:00	39.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	48	-999.99	-999.99
10:18:30	42.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	58	-999.99	-999.99
10:19:00	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	40	-999.99	-999.99
10:19:30	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	42	-999.99	-999.99
10:20:00	44.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	55	-999.99	-999.99
10:20:30	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	40	-999.99	-999.99
10:21:00	45.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	70	-999.99	-999.99
10:21:30	48.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	58	-999.99	-999.99
10:22:00	47.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	75	-999.99	-999.99
10:22:30	48.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	75	-999.99	-999.99
10:23:00	50.00	-999.99	-999.99	-999.99	-999.99	-999.99	-999.99	81	-999.99	-999.99

SARNIA OXIDANT STUDY
13 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-BCAT	PID	SCFH
11 43 0	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
11 43 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	59	-999 99	-999 99
11 44 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99
11 44 30	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	61	-999 99	-999 99
11 45 0	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99
11 45 30	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	71	-999 99	-999 99
11 46 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	71	-999 99	-999 99
11 46 30	49 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	70	-999 99	-999 99
11 47 0	49 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	78	-999 99	-999 99
11 47 30	51 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	70	-999 99	-999 99
11 48 0	50 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	65	-999 99	-999 99
11 48 30	49 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	68	-999 99	-999 99
11 49 0	50 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	68	-999 99	-999 99
11 49 30	49 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	62	-999 99	-999 99
11 50 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	65	-999 99	-999 99
11 50 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	61	-999 99	-999 99
11 51 0	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	65	-999 99	-999 99
11 51 30	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	61	-999 99	-999 99
11 52 0	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	63	-999 99	-999 99
11 52 30	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	62	-999 99	-999 99
11 53 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	56	-999 99	-999 99
11 53 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	55	-999 99	-999 99
11 54 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	54	-999 99	-999 99
11 54 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	57	-999 99	-999 99
11 55 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	55	-999 99	-999 99
11 55 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	55	-999 99	-999 99
11 56 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	54	-999 99	-999 99
11 56 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99
11 57 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	62	-999 99	-999 99
11 57 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
11 58 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99
11 58 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99
11 59 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
11 59 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	62	-999 99	-999 99
12 0 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	68	-999 99	-999 99
12 0 30	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	61	-999 99	-999 99
12 1 0	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99
12 1 30	53 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	65	-999 99	-999 99
12 2 0	57 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	70	-999 99	-999 99
12 2 30	59 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	70	-999 99	-999 99
12 3 0	54 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	63	-999 99	-999 99
12 3 30	52 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	67	-999 99	-999 99
12 4 0	51 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99
12 4 30	48 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	64	-999 99	-999 99
12 5 0	48 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	74	-999 99	-999 99
12 5 30	47 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	59	-999 99	-999 99
12 6 0	48 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	69	-999 99	-999 99
12 6 30	50 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	59	-999 99	-999 99
12 7 0	52 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99
12 7 30	50 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	55	-999 99	-999 99
12 8 0	50 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
12 8 30	51 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
12 9 0	47 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99

SARNIA OXIDANT STUDY
13 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	HO	HOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
12 34 0	35 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	44	-999 99	-999 99
12 34 30	38 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	45	-999 99	-999 99
12 37 0	42 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	42	-999 99	-999 99
12 37 30	51 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	41	-999 99	-999 99
12 38 0	57 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	44	-999 99	-999 99
12 38 30	43 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	48	-999 99	-999 99
12 39 0	45 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	72	-999 99	-999 99
12 39 30	72 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	88	-999 99	-999 99
12 40 0	84 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	1 00	-999 99	-999 99
12 40 30	84 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	88	-999 99	-999 99
12 41 0	74 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	78	-999 99	-999 99
12 41 30	61 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	75	-999 99	-999 99
12 42 0	47 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	78	-999 99	-999 99
12 42 30	47 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	48	-999 99	-999 99
12 43 0	59 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	70	-999 99	-999 99
12 43 30	55 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	42	-999 99	-999 99
12 44 0	47 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	41	-999 99	-999 99
12 44 30	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	40	-999 99	-999 99
12 45 0	44 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	41	-999 99	-999 99
12 45 30	47 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	41	-999 99	-999 99
12 46 0	48 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	40	-999 99	-999 99
12 46 30	49 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	42	-999 99	-999 99
12 47 0	52 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	44	-999 99	-999 99
12 47 30	53 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	49	-999 99	-999 99
12 48 0	57 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	70	-999 99	-999 99
12 48 30	59 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	71	-999 99	-999 99
12 49 0	58 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	70	-999 99	-999 99
12 49 30	59 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	71	-999 99	-999 99
12 50 0	40 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	70	-999 99	-999 99
12 50 30	40 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	48	-999 99	-999 99
12 51 0	41 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	48	-999 99	-999 99
12 51 30	41 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	45	-999 99	-999 99
12 52 0	41 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	71	-999 99	-999 99
12 52 30	57 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
12 53 0	57 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	40	-999 99	-999 99
12 53 30	57 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	60	-999 99	-999 99
12 54 0	58 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	40	-999 99	-999 99
12 54 30	58 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	40	-999 99	-999 99
12 55 0	59 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	40	-999 99	-999 99
12 55 30	54 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
12 56 0	54 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	59	-999 99	-999 99
12 56 30	55 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	59	-999 99	-999 99
12 57 0	54 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
12 57 30	54 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	62	-999 99	-999 99
12 58 0	55 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	40	-999 99	-999 99
12 58 30	51 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	52	-999 99	-999 99
12 59 0	48 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
12 59 30	47 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
13 0 0	47 00	-999 99	-999 99	-999 99	-999 99	-999 99	-999 99	58	-999 99	-999 99
13 0 30	47 00	999 99	-999 99	-999 99	-999 99	-999 99	-999 99	43	-999 99	-999 99
13 1 0	47 00	999 99	-999 99	-999 99	-999 99	-999 99	-999 99	54	-999 99	-999 99
13 1 30	47 00	999 99	999 99	-999 99	-999 99	999 99	-999 99	52	-999 99	-999 99
13 2 0	47 00	999 99	-999 99	-999 99	-999 99	-999 99	-999 99	55	-999 99	-999 99

SARNIA OXIDANT STUDY
13 JULY 84
FLIGHT # 2
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
17.02.20	46.59	3.18	5.97	74.28	1183.47	29.51	12.98	0.42	0.84	0.04
17.02.50	46.78	3.46	5.72	75.71	1213.00	29.42	14.02	0.47	0.86	0.07
17.03.20	47.13	3.60	5.41	77.51	1155.43	29.49	13.97	0.49	0.83	0.04
17.03.50	47.00	3.18	5.34	78.54	1132.70	29.45	13.81	0.47	0.83	0.07
17.04.20	45.98	3.29	5.23	74.60	1149.73	29.32	13.71	0.46	0.82	0.04
17.04.50	45.50	3.53	5.34	74.84	1189.53	29.53	12.84	0.45	0.83	0.04
17.05.20	44.85	3.78	5.44	72.41	1196.87	29.84	12.22	0.45	0.84	0.04
17.05.50	45.77	3.44	5.23	75.32	1195.40	30.03	12.40	0.45	0.85	0.07
17.06.20	45.31	3.18	5.24	74.21	1143.87	30.11	10.71	0.42	0.79	0.07
17.06.50	44.44	2.90	5.41	75.13	1147.53	30.04	10.79	0.42	0.84	0.04
17.07.20	44.87	2.84	5.87	79.27	1144.88	30.03	10.70	0.43	0.83	0.07
17.07.50	48.25	3.04	4.22	83.95	1187.33	29.98	11.17	0.44	0.78	0.04
17.08.20	48.39	2.72	5.58	85.29	1153.97	30.13	10.51	0.43	0.81	0.04
17.08.50	71.24	2.49	5.79	84.40	1180.37	30.02	10.87	0.46	0.85	0.04
17.09.20	74.41	2.79	5.97	87.59	1182.20	30.05	11.35	0.48	0.82	0.04
17.09.50	77.89	2.45	4.08	87.84	1181.47	30.08	11.20	0.71	0.83	0.04
17.10.20	80.14	2.37	4.25	89.70	1148.43	30.18	11.33	0.71	0.80	0.04
17.10.50	80.83	2.47	4.34	89.55	1185.13	30.18	11.07	0.72	0.81	0.04
17.11.20	78.37	3.04	5.94	89.51	1200.53	30.24	9.88	0.47	0.82	0.07
17.11.50	78.51	2.45	5.83	89.55	1178.10	30.43	9.45	0.45	0.81	0.04
17.12.20	70.57	2.24	5.49	91.00	1187.33	30.47	9.17	0.43	0.83	0.04
17.12.50	45.25	2.08	4.18	91.58	1170.18	30.53	9.22	0.59	0.84	0.04
17.13.20	43.10	2.47	4.15	91.44	1171.93	30.54	9.85	0.41	0.80	0.05
17.13.50	48.53	2.41	5.90	92.94	1189.17	30.40	11.51	0.48	0.80	0.05
17.14.20	74.40	2.37	4.25	95.53	1184.23	30.23	12.47	0.74	0.74	0.04
17.14.50	79.44	2.79	4.48	94.48	1144.07	30.13	12.95	0.78	0.74	0.04
17.15.20	80.99	2.79	4.93	98.25	1144.43	30.82	12.75	0.78	0.75	0.04
17.15.50	84.51	2.97	7.43	98.84	1144.88	29.84	12.85	0.79	0.73	0.04
17.16.20	88.38	2.83	7.47	98.94	1180.37	29.74	12.98	0.80	0.74	0.04
17.16.50	90.10	2.72	4.71	98.17	1178.90	29.44	12.49	0.79	0.74	0.04
17.17.20	93.53	2.54	4.32	98.98	1177.80	29.45	11.97	0.79	0.77	0.05
17.17.50	95.17	2.51	4.47	99.32	1177.07	29.45	11.81	0.79	0.79	0.04
17.18.20	85.34	2.37	4.78	98.17	1171.93	29.49	11.34	0.70	0.74	0.04
17.18.50	70.48	2.51	4.32	95.37	1178.53	29.62	11.24	0.62	0.74	0.04
17.19.20	45.25	2.08	5.79	94.34	1172.30	29.40	11.44	0.40	0.74	0.04
17.19.50	43.78	1.84	5.48	93.42	1174.50	29.51	11.47	0.40	0.47	0.04
17.20.20	43.83	2.33	5.41	94.41	1142.40	29.53	11.83	0.41	0.48	0.04
17.20.50	44.48	2.79	5.55	94.07	1193.57	29.28	11.97	0.58	0.70	0.04
17.21.20	43.32	2.79	5.34	94.30	1203.83	29.23	11.82	0.54	0.73	0.04
17.21.50	43.44	2.49	4.42	95.33	1141.13	29.57	11.47	0.57	0.74	0.05
17.22.20	45.14	2.47	4.38	91.12	1155.07	29.43	11.51	0.55	0.77	0.04
17.22.50	49.48	2.19	4.52	85.98	1090.90	29.93	11.35	0.58	0.82	0.04
17.23.20	47.54	1.84	4.59	88.28	844.13	30.49	11.92	0.59	0.81	0.04
17.23.50	49.53	2.37	4.49	88.82	739.27	30.92	11.81	0.59	0.78	0.04
17.24.20	47.01	1.94	4.77	89.47	657.13	30.54	11.84	0.54	0.77	0.05
17.24.50	64.54	2.37	4.38	84.13	702.23	30.54	11.94	0.55	0.78	0.04
17.25.20	79.34	2.30	4.28	80.94	951.20	30.48	11.49	0.45	0.81	0.04
17.25.50	92.34	2.51	4.64	87.13	1155.07	30.15	12.49	0.77	0.82	0.05
17.26.20	98.03	2.84	5.90	88.74	1402.20	29.50	12.40	0.75	0.81	0.04
17.26.50	85.53	2.90	7.03	87.94	1411.93	28.88	12.27	0.75	0.82	0.04
17.27.20	83.98	2.74	7.28	88.78	1792.33	28.33	11.92	0.77	0.84	0.05
17.27.50	82.50	2.90	7.40	91.53	1991.07	27.79	11.17	0.72	0.84	0.05
17.28.20	81.31	3.71	8.14	94.33	2032.13	27.78	11.44	0.73	0.83	0.05

SARNIA OXIDANT STUDY
14 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
09:00:14	0 51	-1 980	-1 940	-1 110	594 07	26 19	-49 97	0 01	0 02	0 02
09:00:44	0 54	-2 120	-1 910	-1 070	500 43	26 33	-49 99	0 01	0 02	0 04
09:01:14	0 59	-2 120	-1 700	-1 000	826 40	26 74	-49 96	0 01	0 02	0 03
09:01:44	7 05	-3 470	-2 790	2 570	1113 70	27 57	-16 53	0 49	1 91	-3 14
09:02:14	2 20	-4 130	-3 320	3 400	1138 27	28 41	15 13	1 20	4 02	0 18
09:02:44	1 55	-3 360	-3 390	3 910	1050 27	28 77	15 30	1 24	3 10	0 08
09:03:14	1 21	-2 450	-2 970	3 950	1004 07	28 74	15 44	1 22	2 94	-0 07
09:03:44	1 12	-3 070	-2 900	4 140	1009 57	28 43	15 44	1 24	2 92	-0 24
09:04:14	1 07	-2 450	-2 580	4 040	945 03	28 53	15 45	1 17	2 95	-0 27
09:04:44	1 07	-2 970	-2 440	4 250	969 97	28 45	15 57	1 21	3 01	-0 27
09:05:14	0 97	-2 440	-3 070	4 10	995 43	28 41	15 50	1 25	3 02	-0 33
09:05:44	0 97	-2 490	-2 900	3 07	1029 37	28 29	15 48	1 22	2 94	-0 33
09:06:14	0 88	-2 860	-2 490	3 07	1032 47	28 00	15 53	1 20	3 02	-0 31
09:06:44	13 77	-1 020	-0 920	11 19	1014 70	27 40	15 54	1 19	3 01	-0 38
09:07:14	45 01	0 000	7 470	45 50	1012 07	28 24	15 40	1 11	2 91	-0 35
09:07:44	72 16	11 070	11 550	57 50	1020 43	28 43	15 30	1 12	2 85	-0 30
09:08:14	73 15	13 000	14 450	40 48	1000 33	28 42	15 24	1 14	2 80	-0 32
09:08:44	69 77	12 060	14 750	42 90	1195 10	28 27	15 24	1 13	2 77	0 01
09:09:14	60 04	14 200	23 440	72 45	1178 40	28 44	15 24	1 20	2 72	11 45
09:09:44	75 22	11 040	21 200	47 01	1200 23	28 35	15 23	1 14	2 66	15 49
09:10:14	70 23	10 21	44 39	44 51	1220 47	28 22	15 14	1 14	2 64	15 30
09:10:44	70 88	9 43	13 99	43 04	1239 83	27 80	15 00	1 14	2 66	15 30
09:11:14	70 74	8 49	13 47	43 25	1231 07	27 49	14 74	1 21	2 71	15 18
09:11:44	45 02	9 04	20 10	82 24	1222 97	27 84	14 80	2 52	3 14	14 43
09:12:14	54 24	17 07	41 49	91 77	1222 97	27 85	14 35	1 20	2 47	14 40
09:12:44	74 27	12 76	30 40	73 75	1237 27	27 90	14 34	1 22	2 39	14 33
09:13:14	74 70	9 45	22 41	49 57	1249 37	28 03	14 32	1 14	2 36	14 24
09:13:44	70 74	7 47	14 89	44 71	1254 33	28 04	14 31	1 09	2 35	14 34
09:14:14	74 04	4 75	13 82	45 47	1257 07	28 10	14 11	1 04	2 29	14 59
09:14:44	77 04	5 87	11 80	44 55	1259 43	28 10	13 89	1 01	2 25	14 41
09:15:14	74 77	5 34	9 79	43 33	1250 17	28 11	13 60	0 98	2 23	14 24
09:15:44	77 11	5 09	8 37	42 18	1242 93	27 91	14 07	1 02	2 24	14 14
09:16:14	77 91	4 35	7 49	43 33	1254 50	27 83	14 54	1 04	2 24	13 71
09:16:44	77 52	4 20	7 20	43 25	1259 27	27 49	14 44	1 10	2 25	14 37
09:17:14	79 20	4 20	7 35	44 47	1245 87	27 97	14 24	1 16	2 16	14 75
09:17:44	77 81	4 06	4 71	44 43	1250 53	27 85	14 33	1 00	2 14	14 95
09:18:14	45 11	4 49	10 70	44 47	1256 33	27 78	14 22	0 98	2 16	14 50
09:18:44	72 74	4 43	12 08	45 74	1255 97	27 41	13 89	0 94	2 14	14 01
09:19:14	74 44	4 20	10 07	45 43	1240 57	27 20	14 34	1 10	2 19	14 44
09:19:44	74 78	4 35	9 19	42 44	1184 10	27 43	14 55	1 18	2 23	14 40
09:20:14	72 08	4 31	9 45	45 43	1199 50	27 04	15 01	1 32	2 24	13 99
09:20:44	44 54	4 17	10 67	47 08	1190 33	24 74	15 74	1 51	2 32	14 54
09:21:14	70 46	4 70	12 45	47 08	1232 50	27 49	14 25	1 04	2 03	14 49
09:21:44	75 77	4 49	10 49	44 74	1222 40	27 62	14 50	1 32	2 05	14 86
09:22:14	79 53	4 20	9 05	45 89	1234 17	27 84	14 40	1 18	2 04	13 93
09:22:44	78 42	3 39	7 74	46 89	1234 33	27 41	14 02	1 14	2 07	14 31
09:23:14	79 42	3 57	6 85	47 50	1254 50	27 88	14 33	1 14	2 03	14 00
09:23:44	77 74	3 11	6 54	48 19	1210 20	27 57	14 08	1 26	2 14	14 46
09:24:14	71 24	3 39	8 44	75 75	1233 97	27 80	14 44	1 39	2 12	14 31
09:24:44	65 08	4 52	14 52	80 58	1242 03	27 24	15 40	1 38	2 25	14 48
09:25:14	48 36	4 24	13 92	74 71	1241 10	27 31	15 24	1 32	2 21	14 29
09:25:44	71 98	1 20	12 33	71 95	1240 93	27 44	15 15	1 35	2 17	14 12
09:26:14	68 76	4 06	12 97	73 54	1211 40	27 10	15 68	1 68	2 32	14 19

SARNIA OXIDANT STUDY
14 JULY 84
FLIGHT 8 I
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
10:46:14	82 52	2 19	14 52	104 57	1243 47	28 46	15 40	1 11	1 98	12 88
10:46:44	84 08	2 19	14 77	107 60	1243 47	28 51	15 11	1 05	1 93	12 33
10:47:14	83 45	2 12	14 27	108 14	1274 30	28 59	14 94	1 00	1 91	12 54
10:47:44	82 79	2 12	12 90	110 44	1257 80	28 87	14 45	1 00	1 84	12 81
10:48:14	83 42	2 19	11 84	110 25	1275 77	28 84	14 01	1 02	1 84	12 45
10:48:44	81 04	1 91	11 45	110 78	1240 73	28 85	14 75	1 02	1 85	13 47
10:49:14	80 38	1 38	11 09	108 75	1280 90	28 78	14 55	0 99	1 83	13 26
10:49:44	80 27	0 99	9 94	108 90	1241 83	28 75	14 85	1 01	1 84	12 79
10:50:14	81 24	1 20	9 05	110 28	1274 50	28 82	14 69	1 03	1 83	13 23
10:50:44	81 45	1 10	8 44	110 55	1244 40	28 91	15 20	1 04	1 88	13 17
10:51:14	80 15	1 04	8 34	110 13	1248 43	29 00	15 12	0 99	1 85	13 35
10:51:44	80 41	1 04	7 81	109 84	1274 87	29 00	14 90	1 00	1 78	13 41
10:52:14	80 94	1 04	7 14	108 21	1248 43	29 14	14 32	0 94	1 74	13 51
10:52:44	82 14	1 10	6 82	108 44	1248 43	29 28	14 11	0 93	1 75	14 23
10:53:14	80 24	0 99	4 57	108 44	1245 87	29 17	14 88	0 92	1 79	13 83
10:53:44	79 74	0 78	4 32	108 33	1287 87	29 20	14 72	0 94	1 81	13 34
10:54:14	82 45	-0 21	4 18	108 44	1258 53	29 20	14 41	0 95	1 82	13 97
10:54:44	81 38	-0 14	5 72	107 37	1254 87	29 13	14 85	0 95	1 84	13 55
10:55:14	80 29	0 21	5 45	107 49	1255 23	29 09	15 22	0 98	1 85	13 18
10:55:44	81 28	-0 14	4 04	104 74	1248 87	29 19	14 87	0 94	1 83	13 14
10:56:14	84 13	0 18	5 34	107 22	1253 77	29 27	14 54	0 99	1 84	13 43
10:56:44	84 37	0 14	5 37	107 41	1252 30	29 19	14 91	0 99	1 84	13 57
10:57:14	81 87	-0 07	5 38	107 24	1257 07	29 14	15 02	1 01	1 84	13 65
10:57:44	81 72	0 14	4 38	107 37	1244 03	29 14	14 88	1 02	1 79	13 39
10:58:14	83 11	0 32	4 73	109 10	1254 50	29 14	14 35	1 03	1 80	14 77
10:58:44	82 14	0 25	5 51	110 59	1258 53	29 18	14 44	1 09	1 81	13 54
10:59:14	74 28	0 44	4 04	115 11	1243 50	29 29	13 94	1 09	1 81	13 54
10:59:44	73 88	1 02	8 44	114 42	1284 77	28 99	14 48	0 98	1 81	12 43
11:00:14	79 44	1 13	8 52	113 27	1247 90	29 04	14 31	1 01	1 78	4 14
11:00:44	84 54	1 27	7 54	110 55	1222 23	29 11	14 22	1 02	1 78	1 49
11:01:14	84 35	1 02	4 41	108 10	1241 30	29 08	14 22	0 98	1 78	-0 46
11:01:44	85 34	0 95	5 55	108 94	1250 90	29 07	14 14	0 97	1 79	-0 46
11:02:14	82 43	1 13	5 09	107 29	1284 03	29 17	15 01	0 98	1 84	-0 45
11:02:44	81 07	1 04	4 95	111 97	1255 23	29 38	14 44	1 00	1 82	-0 48
11:03:14	79 73	1 02	5 37	113 01	1242 40	29 37	14 88	0 97	1 84	-0 45
11:03:44	77 49	1 27	4 01	111 01	1243 50	29 33	15 18	0 94	1 84	-0 47
11:04:14	77 40	1 38	5 94	110 71	1270 63	29 27	14 83	0 90	1 85	-0 52
11:04:44	78 94	1 10	4 32	111 20	1248 27	29 37	14 60	0 92	1 84	-0 48
11:05:14	79 47	1 13	4 40	112 47	1233 97	29 40	14 40	0 92	1 83	-0 52
11:05:44	79 48	1 10	4 18	113 58	1221 87	29 31	14 12	0 92	1 82	-0 44
11:06:14	80 53	0 99	4 43	112 85	1237 27	29 12	13 94	0 92	1 85	-0 48
11:06:44	79 24	0 42	4 32	111 13	1250 83	28 94	14 91	0 93	1 88	-0 43
11:07:14	77 57	0 44	4 22	109 54	1254 87	28 84	15 42	0 97	1 84	-0 44
11:07:44	74 40	0 88	4 50	110 82	1244 03	28 85	15 52	0 97	1 84	-0 44
11:08:14	73 73	1 02	4 41	111 43	1249 53	28 94	15 88	0 94	1 83	-0 47
11:08:44	74 07	1 04	4 43	110 84	1242 40	28 98	15 23	0 94	1 80	-0 48
11:09:14	75 97	1 04	4 15	111 43	1227 37	28 95	15 10	0 97	1 81	-0 47
11:09:44	77 33	1 10	4 11	110 09	1228 10	28 81	15 12	0 94	1 80	-0 47
11:10:14	78 01	0 85	5 44	109 43	1215 27	28 79	14 74	0 95	1 74	-0 45
11:10:44	78 30	0 99	5 19	109 67	1238 00	28 44	14 90	0 93	1 78	-0 48
11:11:14	78 18	1 02	5 14	108 48	1243 13	28 60	14 74	0 92	1 74	-0 48
11:11:44	74 83	0 85	5 12	108 90	1280 53	28 54	15 54	0 93	1 80	-0 50
11:12:14	73 73	0 95	5 23	109 54	1244 97	28 73	15 45	0 90	1 81	-0 50

SARITA OXIDANT STUDY
16 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
10 02 14	1 17	-1 480	-1 130	2 11	1580 70	20 59	11 09	0 52	1 44	-0 29
10 02 44	1 27	-1 550	-1 340	2 11	1522 03	20 70	11 29	0 53	1 44	-0 35
10 03 14	1 22	-1 980	-1 590	2 24	1440 13	20 89	11 07	0 52	1 45	-0 20
10 03 44	1 17	-1 940	-1 200	2 11	1383 07	21 11	11 20	0 52	1 49	1 11
10 04 14	1 30	-1 770	-1 100	2 34	1277 83	21 40	11 35	0 53	1 72	10 84
10 04 44	9 04	5 720	4 590	19 84	1301 47	21 13	11 24	0 53	1 72	10 84
10 05 14	24 05	20 810	14 540	50 80	1285 53	21 14	11 30	0 54	1 74	10 47
10 05 44	24 03	22 580	18 760	71 30	1325 87	21 01	11 14	0 51	1 77	10 14
10 06 14	27 32	21 270	18 340	74 83	1290 47	21 00	11 43	0 53	1 77	10 47
10 06 44	28 13	19 290	14 430	79 23	1244 10	21 04	11 20	0 53	1 75	10 82
10 07 14	28 54	17 38	15 02	81 23	1299 83	20 90	11 34	0 52	1 78	10 31
10 07 44	28 48	14 22	13 92	82 24	1304 07	20 84	11 29	0 51	1 77	10 88
10 08 14	28 42	15 14	12 51	81 44	1304 07	20 83	11 43	0 52	1 77	11 79
10 08 44	28 58	13 11	11 77	81 11	1305 70	20 75	11 24	0 52	1 79	11 43
10 09 14	28 51	11 80	11 27	82 72	1307 90	20 72	11 51	0 51	1 79	10 91
10 09 44	27 95	11 13	10 78	83 87	1294 90	20 47	11 53	0 52	1 80	10 45
10 10 14	27 83	10 74	10 81	83 22	1298 73	20 74	11 47	0 53	1 81	11 01
10 10 44	28 53	9 84	9 93	83 11	1300 57	20 42	11 42	0 50	1 81	10 73
10 11 14	29 21	8 42	9 34	84 79	1288 10	20 49	11 33	0 49	1 80	9 72
10 11 44	28 48	8 48	8 27	84 44	1293 40	20 43	11 55	0 50	1 80	10 15
10 12 14	28 71	8 37	7 84	83 18	1283 70	20 45	11 42	0 50	1 83	9 34
10 12 44	28 92	7 47	7 74	82 11	1287 00	20 58	11 35	0 49	1 82	10 23
10 13 14	29 15	7 49	7 44	81 43	1303 50	20 47	11 38	0 48	1 84	10 94
10 13 44	29 09	4 44	7 17	80 58	1314 70	20 54	11 53	0 49	1 87	10 50
10 14 14	29 31	4 50	7 28	83 99	1292 50	20 59	11 39	0 48	1 94	10 35
10 14 44	29 49	4 57	7 21	85 25	1280 40	20 58	11 43	0 49	1 98	9 94
10 15 14	29 51	4 40	4 78	85 18	1281 50	20 41	11 22	0 47	2 12	10 45
10 15 44	29 72	4 25	4 54	84 24	1284 43	20 49	11 21	0 48	2 04	10 44
10 16 14	29 41	4 47	7 38	84 40	1284 80	20 44	11 45	0 50	1 94	10 27
10 16 44	29 41	4 40	7 42	84 54	1301 30	20 47	11 44	0 47	2 00	9 73
10 17 14	29 65	5 90	4 82	83 99	1271 40	20 58	11 38	0 45	1 95	10 42
10 17 44	29 77	5 97	4 41	85 29	1277 83	20 42	11 35	0 45	1 97	10 89
10 18 14	30 24	5 49	4 40	84 94	1289 57	20 49	11 19	0 44	1 84	10 54
10 18 44	29 85	5 94	4 50	84 49	1310 83	20 33	11 24	0 43	1 93	10 54
10 19 14	29 48	5 41	4 32	85 98	1304 43	20 39	11 72	0 45	1 93	10 94
10 19 44	29 94	5 55	4 40	88 13	1314 13	20 28	11 82	0 44	1 94	10 85
10 20 14	29 97	5 65	4 50	88 59	1287 73	20 34	11 42	0 45	2 19	10 79
10 20 44	30 02	5 51	4 47	84 10	1304 43	20 33	11 97	0 48	2 19	10 49
10 21 14	30 00	5 37	4 43	84 72	1318 17	20 37	11 90	0 47	2 31	10 70
10 21 44	30 48	4 84	4 34	89 14	1317 80	20 49	12 13	0 51	2 29	11 19
10 22 14	30 45	4 70	4 22	88 78	1315 97	20 52	11 81	0 49	2 28	10 48
10 22 44	31 19	5 24	5 97	88 17	1290 30	20 42	12 04	0 51	2 29	9 49
10 23 14	31 74	5 45	5 94	84 75	1303 13	20 85	12 14	0 51	2 24	10 22
10 23 44	31 74	5 49	4 29	84 48	1304 80	21 15	11 48	0 50	2 22	0 21
10 24 14	31 38	5 37	7 07	88 34	1314 70	21 32	11 40	0 52	2 19	0 33
10 24 44	31 11	5 58	7 49	88 01	1304 43	21 50	11 59	0 52	2 22	2 48
10 25 14	32 28	5 34	8 59	91 31	1323 30	21 57	11 57	0 71	2 32	4 41
10 25 44	32 71	4 34	10 44	94 74	1281 13	21 41	11 30	0 49	2 32	10 78
10 26 14	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
10 26 44	31 55	7 53	13 29	93 44	1292 50	21 59	11 45	0 53	2 23	11 23
10 27 14	33 29	7 00	12 37	94 18	1318 17	21 44	11 49	0 40	2 25	11 01
10 27 44	33 57	4 54	11 20	97 83	1303 13	21 75	11 39	0 54	2 20	11 15
10 28 14	33 08	5 83	10 53	94 52	1300 57	21 49	11 34	0 53	2 18	11 45

SARNIA OXIDANT STUDY
14 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	HO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
11 48 12	35 29	1 64	4 17	105 24	1350 80	20 39	12 03	0 45	1 94	10 24
11 48 42	34 83	1 73	3 82	103 23	1354 47	20 38	11 93	0 45	1 92	9 81
11 49 12	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 49 42	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 50 12	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 50 42	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 51 12	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 51 42	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 52 12	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 52 42	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
11 53 07	34 89	1 87	4 38	105 38	1319 43	20 80	11 85	0 45	1 84	10 48
11 53 37	35 87	2 12	4 38	105 38	1321 47	20 78	11 77	0 43	1 88	10 29
11 54 07	35 99	2 14	4 81	103 99	1323 30	20 85	11 49	0 43	1 89	10 81
11 54 37	34 28	1 98	4 28	104 41	1340 17	20 99	11 19	0 42	1 84	10 45
11 55 07	35 70	1 98	4 20	104 34	1333 93	20 99	11 47	0 42	1 89	10 44
11 55 37	35 63	2 37	4 31	104 74	1342 37	20 98	11 41	0 41	1 87	10 77
11 56 07	34 18	2 40	4 35	107 37	1324 97	21 10	11 43	0 42	1 84	10 84
11 56 37	34 38	2 19	3 82	104 74	1329 98	21 15	11 48	0 41	1 87	11 05
11 57 07	34 77	1 91	3 11	104 49	1324 77	21 11	11 34	0 40	1 84	10 93
11 57 37	34 49	2 01	3 43	107 22	1334 13	21 07	11 34	0 40	1 81	10 40
11 58 07	34 80	1 91	3 78	104 99	1310 47	21 05	11 23	0 39	1 78	11 14
11 58 37	37 08	1 44	3 82	104 40	1301 30	21 12	11 10	0 40	1 79	11 20
11 59 07	37 59	1 52	3 75	105 38	1282 97	21 17	11 05	0 40	1 82	10 47
11 59 37	37 04	1 84	3 57	103 27	1293 97	21 11	11 14	0 39	1 82	10 28
12 00 07	34 75	2 01	4 10	101 81	1333 93	21 18	11 30	0 39	1 82	10 44
12 00 37	34 70	2 08	3 50	103 58	1378 47	21 07	11 19	0 38	1 81	10 45
12 01 07	34 74	2 12	3 25	104 50	1392 97	21 10	10 92	0 37	1 80	10 21
12 01 37	34 40	2 05	3 39	105 03	1402 50	21 14	11 11	0 41	1 82	10 45
12 02 07	34 82	2 05	3 47	105 80	1402 13	21 24	10 42	0 37	1 78	10 45
12 02 37	34 75	2 12	3 32	104 72	1405 80	21 37	10 85	0 38	1 79	10 42
12 03 07	34 82	2 12	3 25	104 40	1381 23	21 48	10 53	0 37	1 78	11 07
12 03 37	34 33	2 47	3 39	104 53	1497 47	21 19	10 77	0 37	1 79	11 15
12 04 07	35 90	1 80	3 75	102 88	1929 40	20 09	10 42	0 37	1 81	10 92
12 04 37	34 35	1 70	3 94	100 70	2353 27	18 93	9 05	0 35	1 85	10 40
12 05 07	35 77	1 13	3 89	103 08	2499 03	18 11	9 49	0 34	1 91	10 59
12 05 37	35 38	1 43	4 10	105 80	2774 03	17 74	9 84	0 34	1 91	10 40
12 06 07	35 75	1 94	4 24	109 13	2432 47	18 09	9 48	0 34	1 90	10 51
12 06 37	34 07	1 91	3 85	110 28	2458 13	18 41	9 49	0 38	1 89	10 55
12 07 07	34 89	1 44	3 50	108 48	2328 33	18 88	9 42	0 38	1 88	10 45
12 07 37	34 40	1 70	3 29	109 02	2172 50	19 22	9 91	0 38	1 88	10 47
12 08 07	35 89	1 77	3 32	108 98	2019 23	19 88	10 44	0 37	1 85	10 78
12 08 37	34 18	1 10	3 57	108 29	1840 10	20 43	10 47	0 38	1 81	10 81
12 09 07	34 82	1 45	3 75	109 25	1724 80	20 95	10 30	0 37	1 83	10 99
12 09 37	37 40	1 52	3 44	107 44	1575 93	21 32	10 54	0 39	1 83	11 05
12 10 07	37 89	1 91	3 25	108 33	1392 40	21 85	9 99	0 37	1 77	11 84
12 10 37	37 98	2 01	3 25	107 75	1258 77	22 41	10 70	0 37	1 74	11 04
12 11 07	37 37	1 73	3 44	104 92	1321 47	22 04	10 41	0 38	1 71	10 84
12 11 37	37 31	1 98	3 85	103 54	1298 73	21 88	10 84	0 40	1 74	10 24
12 12 07	37 62	1 91	3 75	103 42	1317 80	21 88	10 28	0 38	1 75	10 37
12 12 37	38 03	2 12	3 43	101 58	1317 43	21 90	10 59	0 37	1 78	10 07
12 13 07	38 23	1 91	3 94	103 27	1348 03	21 99	10 04	0 38	1 74	10 28
12 13 37	38 45	1 75	1 44	105 19	1330 63	22 23	10 44	0 39	1 77	10 25
12 14 07	38 33	1 44	3 82	105 84	1353 00	21 99	10 46	0 39	1 75	10 24

SAHARA OXIDANT STUDY
14 JULY 84
FLIGHT 01
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
12 41 07	37 03	2 12	3 07	103 00	1515 43	21 44	10 24	0 42	1 74	0 11
12 41 37	34 87	2 51	3 25	104 38	1453 83	21 75	10 18	0 41	1 73	0 10
12 42 07	34 74	2 19	3 39	105 03	1470 70	21 82	10 44	0 43	1 73	0 10
12 42 37	34 07	2 58	3 89	104 11	1375 73	22 02	10 32	0 42	1 74	0 11
12 43 07	35 63	2 30	3 96	104 72	1441 53	21 74	10 17	0 44	1 72	0 11
12 43 37	35 84	2 24	3 71	105 80	1383 43	21 82	10 49	0 44	1 73	0 10
12 44 07	34 04	2 19	3 22	103 94	1494 17	21 53	10 47	0 43	1 72	0 10
12 44 37	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
12 45 07	34 87	1 63	4 04	105 45	1439 90	21 63	9 87	0 43	1 71	0 10
12 45 37	34 35	1 77	3 71	105 88	1387 47	21 93	10 52	0 40	1 71	0 10
12 46 07	34 60	1 77	3 39	105 42	1355 20	22 05	10 23	0 41	1 71	0 10
12 46 37	34 31	2 08	3 39	105 07	1341 80	21 89	10 40	0 40	1 74	0 11
12 47 07	34 49	2 85	3 22	105 53	1348 40	21 82	10 47	0 38	1 73	0 10
12 47 37	34 77	1 98	3 11	105 45	1341 27	21 90	10 51	0 38	1 71	0 10
12 48 07	37 28	2 19	3 14	105 99	1388 93	21 77	10 25	0 38	1 72	0 10
12 48 37	37 54	2 01	2 93	105 74	1353 00	21 97	9 85	0 37	1 49	0 10
12 49 07	37 60	1 66	3 32	105 42	1375 73	21 95	9 84	0 37	1 71	0 10
12 49 37	37 99	1 70	3 25	105 45	1349 13	21 93	9 58	0 37	1 49	0 10
12 50 07	37 88	1 77	3 18	104 99	1353 80	21 98	9 93	0 34	1 74	0 10
12 50 37	37 24	1 34	3 07	104 14	1341 43	21 93	10 08	0 34	1 71	0 10
12 51 07	37 21	0 81	3 50	104 99	1357 40	22 04	9 51	0 35	1 70	0 10
12 51 37	37 13	1 02	3 25	104 80	1378 47	22 02	9 93	0 35	1 72	0 10
12 52 07	34 72	1 10	3 25	105 45	1384 90	21 95	9 97	0 34	1 44	0 10
12 52 37	34 29	1 73	3 00	104 44	1348 40	22 11	9 83	0 33	1 47	0 10
12 53 07	34 12	2 08	3 11	105 11	1357 77	22 13	10 22	0 33	1 44	0 10
12 53 37	34 23	2 23	3 32	104 94	1378 30	22 25	10 32	0 33	1 45	0 10
12 54 07	35 53	1 91	3 34	105 45	1343 43	22 54	10 34	0 35	1 44	0 10
12 54 37	34 18	2 14	3 22	105 34	1342 53	22 49	9 94	0 35	1 44	0 10
12 55 07	34 45	2 72	3 18	104 84	1389 30	22 50	10 03	0 33	1 48	0 10
12 55 37	34 77	2 65	3 22	104 00	1341 43	22 44	9 85	0 34	1 47	0 09
12 56 07	37 13	2 24	2 97	103 84	1373 90	22 78	9 77	0 37	1 49	0 10
12 56 37	37 09	2 37	3 99	105 74	1383 07	22 85	10 21	0 34	1 74	0 10
12 57 07	34 79	3 22	5 41	107 22	1381 40	22 85	9 87	0 33	1 72	0 09
12 57 37	34 04	2 47	5 87	108 04	1373 53	22 99	9 94	0 35	1 71	0 09
12 58 07	34 47	2 01	5 37	112 81	1353 00	22 91	9 73	0 40	1 73	0 10
12 58 37	34 82	2 16	4 91	112 14	1349 87	22 91	9 84	0 34	1 71	0 10
12 59 07	34 79	2 19	4 54	109 43	1393 33	22 84	9 97	0 34	1 49	0 10
12 59 37	34 89	2 19	4 04	107 83	1344 77	23 11	9 73	0 33	1 48	0 10
13 00 07	34 75	1 84	3 44	107 75	1371 33	23 05	9 82	0 33	1 49	0 10
13 00 37	34 29	1 98	3 75	108 52	1354 47	23 14	9 84	0 34	1 49	0 10
13 01 07	34 83	2 14	5 41	112 42	1359 40	23 01	9 47	0 34	1 47	0 10
13 01 37	35 02	2 08	5 41	111 84	1390 40	23 02	9 45	0 35	1 48	0 10
13 02 07	33 74	2 08	5 87	114 58	1355 20	23 14	9 42	0 34	1 48	0 10
13 02 37	32 18	2 93	7 00	117 84	1382 33	23 08	9 19	0 34	1 47	0 10
13 03 07	34 75	2 72	4 32	114 23	1371 70	23 01	9 34	0 35	1 49	0 10
13 03 37	33 41	3 14	4 18	113 47	1405 43	23 04	9 77	0 38	1 70	0 10
13 04 07	28 80	4 77	10 11	127 53	1343 10	23 11	9 44	0 36	1 49	0 10
13 04 37	34 71	4 88	8 94	117 41	1340 90	23 08	9 37	0 35	1 48	0 10
13 05 07	34 02	4 13	4 47	110 55	1310 81	23 22	9 40	0 34	1 44	0 10
13 05 37	34 43	3 14	5 09	107 45	1280 40	23 40	9 49	0 36	1 72	0 10
13 06 07	8 07	2 26	1 53	54 85	1424 87	22 89	9 47	0 34	1 44	0 10
13 06 37	1 89	1 34	1 94	17 13	1453 47	22 85	9 28	0 36	1 45	0 11
13 07 07	1 61	0 07	1 10	4 14	1451 83	23 15	9 35	0 36	1 48	0 10

SARNIA OXIDANT STUDY
17 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFM
08:56:24	1 48	-1 980	-1 910	1 450	1357 03	22 47	9 34	0 79	2 54	0 10
08:56:54	1 53	-1 940	-1 450	1 420	1410 57	22 43	9 35	0 77	2 59	0 10
08:57:24	1 50	-1 550	-1 520	1 490	1445 03	23 21	9 24	0 71	2 58	0 10
08:57:54	1 44	-1 200	-1 410	1 240	1442 43	22 91	9 15	0 74	2 47	0 10
08:58:24	1 44	-1 240	-1 380	1 230	1442 47	23 03	9 28	0 74	2 70	0 10
08:58:54	1 43	-1 240	-1 100	1 000	1508 83	22 73	9 47	0 78	2 74	0 10
08:59:24	1 44	-1 270	-1 590	1 070	1531 20	22 24	9 70	0 81	2 88	0 11
08:59:54	15 23	3 040	3 750	12 940	1554 50	22 53	9 25	0 78	2 80	0 10
09:00:24	33 17	9 820	14 270	33 140	1562 37	22 73	9 17	0 74	2 78	0 10
09:00:54	35 51	11 590	19 010	35 000	1554 50	22 88	9 10	0 74	2 78	0 10
09:01:24	35 70	11 44	21 34	35 92	1512 87	22 99	9 04	0 74	2 84	0 09
09:01:54	33 44	11 42	23 47	34 30	1493 07	22 98	9 04	0 78	2 90	0 10
09:02:24	30 12	11 13	24 43	34 41	1443 20	22 97	9 14	0 80	2 99	0 10
09:02:54	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
09:03:24	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
09:03:54	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00	-999 00
09:04:24	27 84	9 43	33 25	42 89	1249 48	22 42	10 02	0 88	2 78	0 10
09:04:54	29 14	8 87	32 12	53 21	1255 83	22 17	10 15	0 81	2 74	0 10
09:05:24	25 55	8 44	33 39	50 54	1248 87	22 04	10 47	0 87	2 77	0 10
09:05:54	25 87	8 44	35 19	50 37	1245 00	22 03	10 41	0 87	2 70	0 09
09:06:24	24 37	8 27	36 84	50 83	1325 50	21 90	10 39	0 89	2 45	0 09
09:06:54	27 49	7 70	35 23	55 70	1385 27	21 78	10 43	0 91	2 48	0 10
09:07:24	29 31	7 81	34 34	59 99	1414 07	21 92	9 98	0 87	2 48	0 10
09:07:54	25 58	12 74	37 98	92 27	1415 70	22 09	9 93	0 92	2 47	0 09
09:08:24	24 24	14 48	44 48	99 44	1374 27	22 23	10 02	1 01	2 40	0 10
09:08:54	15 91	15 74	47 38	88 78	1348 03	22 22	10 05	1 23	2 43	0 09
09:09:24	25 01	13 53	44 70	79 00	1342 80	22 23	10 01	1 84	2 40	0 09
09:09:54	28 24	10 88	39 75	72 18	1342 37	22 27	9 94	0 97	2 31	0 09
09:10:24	27 13	9 54	37 21	74 94	1343 10	22 03	10 37	0 99	2 40	0 09
09:10:54	28 70	8 44	35 33	77 43	1365 47	21 88	10 57	0 94	2 41	0 10
09:11:24	29 95	7 47	32 93	75 43	1323 30	22 07	10 59	0 94	2 37	0 10
09:11:54	30 23	7 53	30 70	77 70	1303 87	22 22	10 47	0 94	2 32	0 09
09:12:24	32 57	7 38	27 91	77 24	1348 40	22 17	10 28	0 91	2 24	0 09
09:12:54	33 78	7 21	25 45	74 13	1367 47	22 10	10 55	0 91	2 25	0 09
09:13:24	32 94	6 85	24 52	74 74	1415 70	21 92	10 74	0 91	2 28	0 10
09:13:54	34 29	5 94	22 15	74 43	1421 20	21 91	10 81	0 85	2 24	0 10
09:14:24	38 33	5 30	18 74	72 45	1438 07	21 92	10 93	0 83	2 33	0 10
09:14:54	41 31	5 41	15 74	69 94	1440 27	22 29	10 34	0 80	2 18	0 09
09:15:24	43 01	5 51	13 89	72 45	1503 70	22 54	9 70	0 75	2 09	0 10
09:15:54	43 18	5 34	11 91	73 79	1465 57	22 83	10 11	0 82	2 13	0 10
09:16:24	41 99	4 98	10 81	74 28	1428 90	22 79	10 74	0 84	2 19	0 09
09:16:54	39 47	4 38	10 88	74 84	1409 47	22 59	10 73	0 88	2 25	0 09
09:17:24	38 22	4 42	12 23	78 77	1443 20	22 37	10 47	0 88	2 22	0 09
09:17:54	34 77	4 81	14 03	79 35	1445 03	22 21	10 54	0 92	2 22	0 09
09:18:24	37 13	4 98	14 34	77 34	1470 33	22 31	9 89	0 89	2 14	0 10
09:18:54	37 31	5 37	14 75	77 59	1458 48	22 45	9 47	0 90	2 18	0 10
09:19:24	35 40	5 14	18 20	79 27	1467 77	22 35	9 83	0 91	2 18	0 10
09:19:54	33 46	5 44	19 93	81 57	1471 07	22 24	10 11	0 95	2 14	0 10
09:20:24	33 54	5 34	21 84	80 54	1487 57	22 34	9 49	0 93	2 14	0 09
09:20:54	31 77	5 05	23 71	83 99	1469 40	22 45	9 79	0 93	2 18	0 10
09:21:24	31 91	4 52	25 24	82 57	1477 47	22 61	9 47	0 92	2 18	0 09
09:21:54	31 49	4 38	24 15	84 91	1471 07	22 44	9 44	0 93	2 18	0 10
09:22:24	29 05	4 91	28 14	84 83	1470 70	22 62	9 57	0 97	2 21	0 10

SARNIA OXIDANT STUDY
17 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCIM
09 49 24	34 32	6 29	24 42	88 89	1294 33	22 33	11 22	0 88	1 94	0 10
09 49 54	34 41	6 15	22 30	88 89	1299 10	22 38	11 34	0 84	1 92	0 10
09 50 24	35 29	5 24	20 18	87 48	1298 00	22 35	11 72	0 43	1 92	0 10
09 50 54	37 59	4 70	17 98	88 78	1294 33	22 33	11 92	0 82	1 94	0 10
09 51 24	38 23	4 42	15 72	88 47	1285 53	22 27	12 14	0 80	1 94	0 09
09 51 54	39 39	3 78	13 71	85 14	1274 37	22 39	11 90	0 78	1 91	0 10
09 52 24	38 27	3 99	12 51	87 94	1287 37	22 25	12 17	0 78	1 94	0 10
09 52 54	37 09	4 10	12 74	87 25	1289 57	22 20	12 17	0 78	1 94	0 10
09 53 24	37 77	3 85	12 33	87 82	1272 70	22 29	11 84	0 74	1 88	0 10
09 53 54	38 84	3 25	11 42	84 71	1285 53	22 32	11 72	0 75	1 84	0 10
09 54 24	39 15	3 12	10 39	85 52	1288 47	22 29	11 82	0 79	1 84	0 09
09 54 54	39 51	3 14	10 07	84 48	1290 30	22 35	11 75	0 74	1 85	0 10
09 55 24	39 47	3 18	9 08	85 52	1293 40	22 40	11 82	0 75	1 83	0 10
09 55 54	39 54	3 11	8 73	84 82	1277 10	22 45	11 88	0 75	1 83	0 10
09 56 24	39 41	3 22	8 04	84 29	1285 90	22 40	11 98	0 74	1 84	0 10
09 56 54	40 10	3 25	7 54	81 73	1284 27	22 43	11 90	0 74	1 83	0 10
09 57 24	39 30	3 44	7 84	82 15	1287 73	22 39	12 10	0 74	1 84	0 09
09 57 54	39 95	3 34	8 23	85 71	1282 40	22 47	11 94	0 74	1 81	0 10
09 58 24	40 53	3 07	7 95	85 18	1291 77	22 45	12 00	0 74	1 81	0 10
09 58 54	40 27	3 11	8 09	85 21	1245 93	22 44	12 34	0 75	1 80	0 09
09 59 24	40 20	2 41	8 09	83 57	1347 50	22 43	12 12	0 79	1 80	0 10
09 59 54	40 68	2 72	7 49	84 56	1374 27	22 78	11 99	0 78	1 79	0 10
10 00 24	40 34	3 04	7 38	89 32	1314 50	23 30	12 00	0 79	1 80	0 10
10 00 54	40 43	2 41	7 43	91 08	1379 77	23 24	11 73	0 79	1 81	0 10
10 01 24	42 58	2 47	7 54	89 89	1824 00	22 17	9 41	0 73	1 78	0 10
10 01 54	50 15	2 97	7 53	84 54	2044 90	21 97	7 43	0 48	1 77	0 10
10 02 24	55 13	2 97	7 14	83 91	2153 80	22 02	7 03	0 45	1 81	0 10
10 02 54	55 33	2 72	6 29	89 47	2359 13	21 70	7 34	0 42	1 85	0 10
10 03 24	52 04	2 24	4 04	91 58	2502 50	21 44	8 80	0 40	1 89	0 10
10 03 54	49 14	2 41	5 37	93 24	2458 33	21 23	9 25	0 54	1 88	0 10
10 04 24	52 44	2 30	5 23	90 44	2830 47	21 03	8 59	0 58	1 90	0 10
10 04 54	55 14	2 90	4 88	92 50	2942 87	20 77	8 35	0 41	1 95	0 10
10 05 24	54 39	3 18	4 88	92 49	3054 33	20 50	8 43	0 45	1 94	0 10
10 05 54	58 39	2 79	4 59	93 57	3141 77	20 30	7 57	0 45	1 94	0 10
10 06 24	54 85	2 97	4 42	95 83	3244 10	20 14	7 44	0 43	1 98	0 10
10 06 54	51 34	3 22	5 05	97 17	3321 27	19 88	7 48	0 42	1 98	0 10
10 07 24	49 11	3 43	5 02	97 84	3386 53	19 44	7 44	0 43	1 98	0 09
10 07 54	57 12	3 22	5 55	99 47	3444 30	19 52	4 91	0 48	1 99	0 10
10 08 24	59 30	3 14	5 72	97 84	3517 43	19 28	7 12	0 48	2 02	0 10
10 08 54	53 52	2 37	5 45	98 04	3457 50	18 71	7 43	0 45	2 03	0 09
10 09 24	51 45	2 12	5 48	97 98	3729 37	18 49	7 44	0 44	2 03	0 09
10 09 54	50 57	2 54	5 79	94 80	3917 47	17 74	7 53	0 44	2 09	0 10
10 10 24	48 33	2 84	5 55	90 12	4044 50	17 24	7 49	0 42	2 12	0 10
10 10 54	46 78	3 07	5 49	97 33	4103 37	17 37	7 89	0 41	2 09	0 10
10 11 24	44 72	2 97	5 41	101 44	4148 10	17 42	7 87	0 40	2 05	0 10
10 11 54	44 31	3 18	5 09	103 44	4149 20	17 44	8 02	0 58	2 05	0 10
10 12 24	44 73	2 93	4 77	104 23	4141 87	17 98	8 07	0 54	2 01	0 10
10 12 54	43 79	3 04	5 44	104 92	4119 13	17 72	8 53	1 45	2 08	0 10
10 13 24	44 32	2 45	5 51	104 53	4110 70	17 33	8 71	0 77	2 02	0 10
10 13 54	44 06	2 23	4 77	107 03	4148 83	17 52	8 42	0 57	2 05	0 10
10 14 24	45 19	2 90	4 81	107 03	4074 40	17 89	8 22	0 57	2 04	0 10
10 14 54	45 34	1 11	4 59	104 44	4003 43	17 57	8 21	0 54	2 06	0 10
10 15 24	44 79	2 84	5 23	105 15	3764 20	17 83	8 25	0 54	2 01	0 10

BARRIA OXIDANT STUDY
10 JULY 84
FLIGHT # 1
RAW DATA

TIME	OZONE	NO	NOX	SIGN-X	ALTITUDE	TEMP	DEW POINT	B-SCAT	PID	SCFH
12:43:49	39.27	2.69	3.36	84.71	1890.17	17.58	9.02	0.45	0.66	-0.30
12:44:19	39.07	2.12	3.25	84.06	1669.43	18.44	9.03	0.45	0.62	-0.36
12:44:49	39.17	2.01	3.29	83.91	1477.67	18.74	8.71	0.45	0.64	-0.41
12:45:19	38.88	2.12	3.25	83.64	1439.90	18.52	8.64	0.44	0.63	-0.38
12:45:49	38.83	2.01	2.90	81.65	1447.23	18.38	8.69	0.47	0.63	-0.39
12:46:19	38.49	2.16	3.53	79.39	1445.20	18.21	8.79	0.47	0.64	-0.40
12:46:49	38.30	2.16	3.50	80.27	1465.20	18.21	8.92	0.47	0.64	-0.34
12:47:19	38.15	2.23	3.67	79.89	1475.10	18.24	9.08	0.48	0.62	1.70
12:47:49	37.45	2.16	3.89	79.94	1501.87	18.28	9.23	0.48	0.63	1.90
12:48:19	36.72	2.12	3.89	81.15	1494.90	18.44	9.31	0.49	0.64	7.10
12:48:49	37.28	2.05	4.24	81.38	1462.63	18.52	9.21	0.48	0.68	12.53
12:49:19	36.58	2.12	3.64	80.77	1468.13	18.50	9.24	0.48	0.69	12.63
12:49:49	36.42	2.08	3.36	80.54	1447.60	18.24	8.95	0.45	0.68	12.21
12:50:19	35.99	2.08	3.99	81.84	1450.17	18.07	9.06	0.46	0.68	12.15
12:50:49	36.16	2.19	3.67	81.00	1443.20	17.89	9.17	0.46	0.67	11.40
12:51:19	35.75	2.23	3.78	78.81	1485.00	17.80	9.30	0.47	0.68	11.48
12:51:49	35.85	2.23	3.78	79.77	1448.33	17.93	9.48	0.48	0.69	12.33
12:52:19	35.72	2.19	3.53	79.35	1469.60	17.94	9.44	0.48	0.70	12.24
12:52:49	35.82	2.08	3.39	79.73	1472.90	17.96	9.59	0.50	0.67	12.41
12:53:19	36.04	2.16	3.39	80.42	1479.87	18.07	9.55	0.50	0.67	12.46
12:53:49	36.94	2.19	3.85	79.92	1456.03	18.14	9.27	0.48	0.67	12.47
12:54:19	37.31	2.16	3.94	79.16	1417.17	18.34	9.42	0.48	0.68	12.36
12:54:49	37.55	2.23	3.46	79.12	1454.03	18.31	9.67	0.50	0.68	12.28
12:55:19	37.42	2.16	3.25	80.38	1483.53	18.52	9.74	0.51	0.65	12.63
12:55:49	37.50	2.12	3.29	80.84	1428.90	18.58	9.58	0.51	0.65	12.79
12:56:19	37.04	2.33	3.67	80.04	1456.77	18.36	9.94	0.53	0.63	12.27
12:56:49	36.65	2.23	3.32	79.31	1451.27	18.26	9.74	0.53	0.61	12.41
12:57:19	36.35	2.44	3.67	80.35	1456.03	18.24	9.74	0.53	0.61	12.33
12:57:49	35.77	2.16	4.13	79.54	1481.33	18.45	9.94	0.52	0.61	12.35
12:58:19	36.84	2.19	4.10	80.69	1467.77	18.69	9.61	0.53	0.62	12.50
12:58:49	37.47	2.19	4.03	78.31	1453.83	18.67	9.50	0.54	0.66	12.02
12:59:19	37.20	2.12	3.92	79.16	1455.30	18.68	9.54	0.53	0.63	11.37
12:59:49	38.01	2.08	4.06	79.66	1445.03	18.68	8.93	0.51	0.64	11.38
13:00:19	37.94	2.23	3.75	80.15	1441.00	18.60	9.57	0.54	0.70	10.35
13:00:49	37.13	2.19	3.43	76.59	1452.00	18.66	9.89	0.54	0.77	10.89
13:01:19	37.20	2.44	3.67	79.50	1477.67	18.68	9.95	0.54	0.78	10.59
13:01:49	36.74	2.16	3.32	81.07	1486.10	18.78	9.98	0.56	0.78	11.05
13:02:19	36.80	2.08	3.39	82.03	1459.33	18.83	9.73	0.53	0.79	11.08
13:02:49	36.63	1.84	3.53	81.19	1469.97	18.77	9.73	0.53	0.79	11.77
13:03:19	36.97	2.23	3.57	81.00	1445.03	18.80	9.97	0.51	0.79	11.44
13:03:49	37.09	2.12	3.39	80.35	1451.27	18.74	10.12	0.53	0.77	11.19
13:04:19	36.77	2.40	3.25	79.50	1441.00	18.69	9.94	0.52	0.78	10.91
13:04:49	38.44	1.98	3.00	78.12	1460.43	18.55	9.31	0.49	0.79	10.90
13:05:19	37.91	1.98	2.47	76.13	1431.10	18.48	9.66	0.50	0.80	10.91
13:05:49	37.99	2.12	2.26	77.89	1479.87	18.55	9.53	0.49	0.79	11.58
13:06:19	38.42	2.16	2.19	78.51	1475.47	18.83	9.94	0.52	0.78	11.72
13:06:49	36.04	1.94	2.23	79.96	1481.33	18.73	10.49	0.54	0.78	11.91
13:07:19	35.84	1.87	2.30	81.19	1435.87	18.62	10.18	0.59	0.81	11.62
13:07:49	36.14	1.98	2.30	79.66	1459.33	18.64	10.34	0.55	0.81	11.18
13:08:19	36.80	2.01	2.83	77.89	1439.53	18.57	10.23	0.53	0.81	11.01
13:08:49	36.29	2.01	2.69	78.31	1462.63	18.47	10.40	0.53	0.82	11.58
13:09:19	36.89	2.08	2.69	75.55	1449.07	18.35	10.05	0.52	0.83	11.33
13:09:49	36.79	2.01	2.97	79.31	1494.53	18.43	10.23	0.53	0.83	11.31

APPENDIX B

AIRCRAFT HYDROCARBON DATA

The hydrocarbons data (along with the dates and times over which the samples were collected) are shown in the attached tables. Thirty-four of the aircraft samples were analyzed for approximately 120 organic compounds. Concentrations for individual compounds are shown in micrograms per cubic meter, along with a summary at the end, which contains the total concentration of hydrocarbons as well as a breakdown into nine groups (alkanes, cycloalkanes, alkenes, cycloalkenes, alkynes, aromatics and chlorinated alkanes, alkenes and aromatics). The percentage of the GC peaks that were identified is also shown. Two further points should be noted in connection with these tables:

- (1) The data for benzene are of questionable validity due to an apparent contamination problem of the GC system during the study.
- (2) Although the various organics are reported to a precision of 0.01 micrograms per cubic meter, in reality the accuracy is not considered to be better than about 0.1 ug m^{-3} .

2

units ug/m3

DATE: JUNE 27/94

[illegible]

TIME PERIOD

1543-1620

1450-1529

1.09

0.82

5.19 4.86

4.86

Total hydrocarbons ug/a3:	120.47	134.29
Alkanes ug/a3	37.76	37.74
Cycloalkanes ug/a3	0.00	0.00
Alkenes ug/a3	0.00	0.00
Cycloalkenes ug/a3	0.00	0.00
Alkynes ug/a3	0.00	0.00
Aromatics ug/a3	82.71	96.55
Chlorinated alkanes ug/a3	0.00	0.00
Chlorinated alkenes ug/a3	0.00	0.00
Chlorinated aromatics ug/a3	0.00	0.00

Total # of compounds identified	12	12
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Total # of peaks	32	29
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Total area of peaks	2006.33	2733.34
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Area of identified peaks	1653.77	2076.98
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Area % identified peaks	85	76
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Toluene:Ethylbenzene	0.25	0.25
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Benzene:Ethylbenzene	0.72	0.60
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Xylenes:Ethylbenzene	8.95	9.13
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Ethylbenzene:Ethylbenzene	1.00	1.00
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METHYLCYCLOHEXANE		
2,5-DIMETHYLHEXANE		
4-METHYLCYCLOHEXENE		
1-CHLOROPENTANE		
1,1,2-TRICHLOROETHANE		
TOLUENE	0.62	
1,3-DICHLOROPROPANE		
2-METHYLHEPTANE		
1,2-DIBROMOETHANE		
1-OCTENE		
TRANS-1,2-DIMETHYLCYCLOHEXANE		
TRANS-4-OCTENE		
TETRACHLOROETHYLENE		
OCTANE		
2-METHYL-1-HEPTENE		
2-OCTENE		
CIS-1,2-DIMETHYLCYCLOHEXANE		
CHLOROBENZENE		
PROPYLCYCLOPENTANE		
ETHYLCYCLOHEXANE		
1-CHLOROCYCLOHEXANE		
ETHYLBENZENE	0.73	0.37
M-XYLENE	4.62	2.36
STYRENE		
1,4-DICHLOROBUTANE		
O-XYLENE	4.26	2.41
1,1,2,2-TETRACHLOROETHANE		
1,2,3-TRICHLOROPROPANE		
1-NONENE		
NONANE	0.81	
ISOPROPYLBENZENE		
2-CHLOROTOLUENE		
3-CHLOROTOLUENE		
N-PROPYLBENZENE		
4-CHLOROTOLUENE		
3-ETHYLTOLUENE		
4-ETHYLTOLUENE		
1,3,5-TRIMETHYLBENZENE		
2-ETHYLTOLUENE		
T-BUTYLBENZENE		
1,2,4-TRIMETHYLBENZENE		
1,3-DICHLOROBENZENE		
1-DECENE		
A-CHLOROTOLUENE		
1,5-DICHLOROPENTANE		
DECANE	1.36	
SEC. BUTYLBENZENE		
3-(CHLOROMETHYL)-HEPTANE		
1,2,3-TRIMETHYLBENZENE		
1-ISOPROPYL-4-METHYLBENZENE		
1,2-DICHLOROBENZENE		
INDAN		
N-BUTYLCYCLOHEXANE		
1,3-DIETHYLBENZENE		
1,4-DIETHYLBENZENE		
N-BUTYLBENZENE		
1,2-DIETHYLBENZENE		
DECALIN		
UNDECANE	3.51	
1,2,3,5-TETRAMETHYLBENZENE		
DIISOPROPYLBENZENE		
1,2,3,4-TETRAMETHYLBENZENE		
TETRALIN		
DODECANE	8.81	1.18

Total hydrocarbons ug/m3:	24.17	89.78	87.98	69.10	100.80
Alkanes ug/m3	15.89	14.63	15.26	12.48	18.88
Cycloalkanes ug/m3	0.32	0.16	0.00	0.00	0.00
Alkenes ug/m3	2.61	1.51	0.00	0.00	0.63
Cycloalkenes ug/m3	0.00	0.00	0.00	0.00	0.00
Alkynes ug/m3	0.00	0.00	0.00	0.00	0.00
Aromatics ug/m3	2.44	72.18	71.85	56.62	79.47
Chlorinated alkanes ug/m3	1.47	0.00	0.00	0.00	0.00
Chlorinated alkenes ug/m3	1.44	1.30	0.87	0.00	1.35
Chlorinated aromatics ug/m3	0.00	0.00	0.00	0.00	0.47
Total # of compounds identified	21	25	20	18	19
Total # of peaks	102	83	85	71	77
Total area of peaks	1747.73	1747.73	1747.73	1747.73	1747.73
Area of identified peaks	149.74	149.74	149.74	149.74	149.74
Area % identified peaks	9	74	58.85	64.37	70.21
Toluene:Ethylbenzene		0.20	0.33	0.25	0.18
Benzene:Ethylbenzene		0.47	5.92	1.10	1.49
Xylenes:Ethylbenzene		8.51	8.88	8.91	9.00
Ethylbenzene:Ethylbenzene		1.00	1.00	1.00	1.00

METHYLCYCLOHEXANE			
2,5-DIMETHYLHEXANE			
4-METHYLCYCLOHEXENE			
1-CHLOROPENTANE			
1,1,2-TRICHLOROETHANE			
TOLUENE	1.88	0.45	0.58
1,3-DICHLOROPROPANE			
2-METHYLHEPTANE			
1,2-DIBROMOETHANE			
1-OCTENE			
TRANS-1,2-DIMETHYLCYCLOHEXANE			
TRANS-4-OCTENE			
TETRACHLOROETHYLENE			
OCTANE	0.42		0.27
2-METHYL-1-HEPTENE			
2-OCTENE			
CIS-1,2-DIMETHYLCYCLOHEXANE			
CHLOROBENZENE			
PROPYLCYCLOPENTANE			
ETHYLCYCLOHEXANE			
1-CHLOROCYCLOHEXANE			
ETHYLBENZENE	1.95	2.01	5.03
M-XYLENE	7.92	9.44	23.28
STYRENE			
1,4-DICHLOROBUTANE			
O-XYLENE	7.47	9.56	25.66
1,1,2,2-TETRACHLOROETHANE			
1,2,3-TRICHLOROPROPANE			
1-NONENE			
NONANE	1.11	1.58	1.98
ISOPROPYLBENZENE	1.16	1.51	4.18
2-CHLOROTOLUENE			
3-CHLOROTOLUENE			
N-PROPYLBENZENE			
4-CHLOROTOLUENE			
3-ETHYLTOLUENE	0.37		0.31
4-ETHYLTOLUENE			
1,3,5-TRIMETHYLBENZENE			
2-ETHYLTOLUENE			
T-BUTYLBENZENE		0.45	0.45
1,2,4-TRIMETHYLBENZENE			
1,3-DICHLOROBENZENE			
1-DECENE			
A-CHLOROTOLUENE			
1,5-DICHLOROPENTANE			
DECANE		2.18	1.59
SEC-BUTYLBENZENE			
3-(CHLOROMETHYL)-HEPTANE			
1,2,3-TRIMETHYLBENZENE			
1-ISOPROPYL-4-METHYLBENZENE			
1,2-DICHLOROBENZENE			
INDAN			
N-BUTYLCYCLOHEXANE			
1,3-DIETHYLBENZENE			
1,4-DIETHYLBENZENE			
N-BUTYLBENZENE			
1,2-DIETHYLBENZENE			
DECALIN			
UNDECANE	3.11	3.52	3.19
1,2,3,5-TETRAMETHYLBENZENE			
DIISOPROPYLBENZENE			
1,2,3,4-TETRAMETHYLBENZENE			
TETRALIN			
DODECANE	3.38		4.76

PLANE SAMPLE
DATE: JULY 7/84

DATE: JULY 7/84

[illegible]

TIME PERIOD

PROPANE			
PROPADIENE			
PROPYNE			
CHLOROMETHANE			
CYCLOPROPANE			
ISOBUTANE			
VINYL CHLORIDE			
1-BUTENE			
1,3-BUTADIENE			
BUTANE			
1-BUTYNE			
CHLOROETHANE			
3-METHYL-1-BUTENE			
2-METHYLBUTANE		0.37	
1-PENTENE			
PENTANE		0.26	
ISOPRENE			
TRANS-2-PENTENE			
DICHLOROMETHANE			
2-METHYL-2-BUTENE			
2-CHLORO-2-METHYLBUTANE			
3-CHLOROPROPENE			
2,2-DIMETHYLBUTANE			
3-METHYL-1-PENTENE			
2,3-DIMETHYLBUTANE			
3-METHYLPENTANE		0.16	
1-HEXENE			
CIS-1,2-DICHLOROETHYLENE			
2-CHLOROBUTANE			
HEXANE		0.28	
CHLOROFORM			
TRANS-3-HEXENE			
3-CHLORO-2-METHYLPROPENE			
METHYLCYCLOPENTANE			
1,2-DICHLOROETHANE			
1,1,1-TRICHLOROETHANE			
1-CHLOROBUTANE			
BENZENE	19.07	5.26	9.39
CARBON TETRACHLORIDE			
CYCLOHEXANE			
2-METHYLHEXANE			
2,3-DIMETHYLPENTANE	0.84	0.30	
CYCLOHEXENE			
DIBROMOMETHANE			
3-METHYLHEXANE			
1,2-DICHLOROPROPANE			
2,3-DICHLOROPROPANE			
TRICHLOROETHYLENE			
2,2,4-TRIMETHYLPENTANE	8.31	2.00	1.04
1-HEPTENE			
HEPTANE			
1-CHLORO-3-METHYLBUTANE			

Total hydrocarbons ug/a3:	58.07	41.63	51.53
Alkanes ug/a3	18.38	6.63	3.03
Cycloalkanes ug/a3	0.00	0.00	0.00
Alkenes ug/a3	0.00	0.00	0.00
Cycloalkenes ug/a3	0.00	0.00	0.00
Alkynes ug/a3	0.00	0.00	0.00
Aromatics ug/a3	39.69	35.00	48.50
Chlorinated alkanes ug/a3	0.00	0.00	0.00
Chlorinated alkenes ug/a3	0.00	0.00	0.00
Chlorinated aromatics ug/a3	0.00	0.00	0.00

Total # of compounds identified	15	17	10
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Total # of peaks	33	40	25
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Total area of peaks	1405.40	1077.77	1048.12
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Area of identified peaks	1018.00	771.00	891.39
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Area % identified peaks	72	72	85
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Toluene:Ethylbenzene	0.69	0.23	0.00
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Benzene:Ethylbenzene	10.84	2.21	3.05
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Xylenes:Ethylbenzene	8.52	9.67	10.32
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Ethylbenzene:Ethylbenzene	1.00	1.00	1.00
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METHYLCYCLOHEXANE	0.83	0.34	0.15	0.17	
2,5-DIMETHYLHEXANE	3.45	5.86	0.66	0.49	3.57
4-METHYLCYCLOHEXENE	0.21				
1-CHLOROPENTANE					
1,1,2-TRICHLOROETHANE					
TOLUENE	3.59	2.13	0.57	0.86	1.67
1,3-DICHLOROPROPANE					
2-METHYLHEPTANE		0.19			
1,2-DIBROMOETHANE					
1-OCTENE	0.24	0.25			
TRANS-1,2-DIMETHYLCYCLOHEXANE	0.09				
TRANS-4-OCTENE					
TETRACHLOROETHYLENE					
OCTANE	0.75	0.35		0.23	0.52
2-METHYL-1-HEPTENE					
2-OCTENE					
CIS-1,2-DIMETHYLCYCLOHEXANE					
CHLOROBENZENE					
PROPYLCYCLOPENTANE					
ETHYLCYCLOHEXANE	0.38	0.33			0.19
1-CHLOROCYCLOHEXANE					
ETHYLBENZENE	2.98	2.62	1.46	2.81	1.74
M-XYLENE	8.72	8.74	6.54	11.22	7.61
STYRENE					
1,4-DICHLOROBUTANE					
O-XYLENE	8.28	8.58	7.06	12.18	8.80
1,1,2,2-TETRACHLOROETHANE					
1,2,3-TRICHLOROPROPANE					
1-NONENE		0.60	0.21	0.21	0.52
NONANE	1.71	2.03	1.16	1.10	1.36
ISOPROPYLBENZENE	1.62	1.87	1.26	2.22	1.84
2-CHLOROTOLUENE					
3-CHLOROTOLUENE					
N-PROPYLBENZENE					
4-CHLOROTOLUENE	1.32				0.59
3-ETHYLTOLUENE	0.54			0.09	0.33
4-ETHYLTOLUENE		0.39			
1,3,5-TRIMETHYLBENZENE	0.62				
2-ETHYLTOLUENE					
T-BUTYLBENZENE	1.26	1.55	0.85	0.64	0.58
1,2,4-TRIMETHYLBENZENE		2.70	0.62	1.11	1.01
1,3-DICHLOROBENZENE					
1-DECENE					
A-CHLOROTOLUENE					
1,5-DICHLOROPENTANE	0.19	0.28			
DECANE	3.92	5.66	2.07	1.03	1.65
SEC-BUTYLBENZENE					
3-(CHLOROMETHYL)-HEPTANE					
1,2,3-TRIMETHYLBENZENE	0.49	0.64			0.37
1-ISOPROPYL-4-METHYLBENZENE	1.04				
1,2-DICHLOROBENZENE					
INDAN					
N-BUTYLCYCLOHEXANE	0.34	1.34			
1,3-DIETHYLBENZENE					
1,4-DIETHYLBENZENE					
N-BUTYLBENZENE					
1,2-DIETHYLBENZENE					
DECALIN					
UNDECANE	5.55				4.51
1,2,3,5-TETRAMETHYLBENZENE					
DIISOPROPYLBENZENE					
1,2,3,4-TETRAMETHYLBENZENE	0.83				0.86
TETRALIN					
DODECANE	3.58				5.30

SARNIA OXIDANTS STUDY JUNE-JULY 1984

PLANE SAMPLE

DATE: JULY 13/84

units ug/m3

[illegible]

TIME PERIOD

COMPOUND NAME 0937-0953 1132-1202
 1020-1035

PROPANE	2.05		
PROPADIENE			
PROPYNE			
CHLOROMETHANE			
CYCLOPROPANE			
ISOBUTANE	0.99		
VINYL CHLORIDE			
1-BUTENE			
1,3-BUTADIENE			
BUTANE	3.82		7.26
1-BUTYNE			
CHLOROETHANE			
3-METHYL-1-BUTENE			
2-METHYLBUTANE	5.72		32.43
1-PENTENE	0.14		0.30
PENTANE	2.26	0.09	4.34
ISOPRENE			0.99
TRANS-2-PENTENE			
DICHLOROMETHANE	0.86		0.74
2-METHYL-2-BUTENE	0.28		1.23
2-CHLORO-2-METHYLBUTANE			
3-CHLOROPROPENE			
2,2-DIMETHYLBUTANE			0.19
3-METHYL-1-PENTENE			0.11
2,3-DIMETHYLBUTANE	1.17	0.14	
3-METHYLPENTANE	0.54	0.21	2.04
1-HEXENE	0.15		0.26
CIS-1,2-DICHLOROETHYLENE			
2-CHLOROBUTANE			
HEXANE	0.72	0.97	1.23
CHLOROFORM			
TRANS-3-HEXENE			
3-CHLORO-2-METHYLPROPENE			
METHYLCYCLOPENTANE	0.30	0.19	0.37
1,2-DICHLOROETHANE			
1,1,1-TRICHLOROETHANE			
1-CHLOROBUTANE			
BENZENE	5.69	7.32	14.40
CARBON TETRACHLORIDE			
CYCLOHEXANE	0.06	0.31	0.10
2-METHYLHEXANE	2.84	1.65	23.03
2,3-DIMETHYLPENTANE	1.55	0.90	12.63
CYCLOHEXENE			
DIBROMOMETHANE			
3-METHYLHEXANE	0.64	0.79	1.53
1,2-DICHLOROPROPANE			
2,3-DICHLOROPROPANE			
TRICHLOROETHYLENE			
2,2,4-TRIMETHYLPENTANE	10.64	6.04	111.03
1-HEPTENE			0.50
HEPTANE	0.26	0.30	0.40
1-CHLORO-3-METHYLBUTANE			

Total hydrocarbons ug/m3:	55.60	37.85	304.02
Alkanes ug/m3	37.92	15.52	230.31
Cycloalkanes ug/m3	0.61	0.80	1.36
Alkenes ug/m3	0.84	0.21	5.10
Cycloalkenes ug/m3	0.00	0.00	0.00
Alkynes ug/m3	0.00	0.00	0.00
Aromatics ug/m3	14.98	20.96	63.42
Chlorinated alkanes ug/m3	0.86	0.00	0.92
Chlorinated alkenes ug/m3	0.00	0.00	1.24
Chlorinated aromatics ug/m3	0.39	0.36	1.67

Total # of compounds identified	35	30	42
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Total # of peaks	93	70	141
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Total area of peaks	2356.19	1335.80	10329.38
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Area of identified peaks	1330.57	998.76	7856.68
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Area % identified peaks	56	67	76
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Toluene:Ethylbenzene	2.44	1.18	0.76
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Benzene:Ethylbenzene	7.90	6.10	3.66
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Xylenes:Ethylbenzene	8.19	6.80	8.93
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Ethylbenzene:Ethylbenzene	1.00	1.00	1.00
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METHYLCYCLOHEXANE	0.21		0.11
2,5-DIMETHYLHEXANE	7.03	1.54	0.66
4-METHYLCYCLOHEXENE			
1-CHLOROPENTANE			
1,1,2-TRICHLOROETHANE			
TOLUENE	2.16		1.36
1,3-DICHLOROPROPANE			
2-METHYLHEPTANE			
1,2-DIBROMOETHANE			
1-OCTENE			
TRANS-1,2-DIMETHYLCYCLOHEXANE			
TRANS-4-OCTENE			
TETRACHLOROETHYLENE			
OCTANE			
2-METHYL-1-HEPTENE			
2-OCTENE			
CIS-1,2-DIMETHYLCYCLOHEXANE			
CHLOROBENZENE			
PROPYLCYCLOPENTANE			
ETHYLCYCLOHEXANE			
1-CHLOROHXANE			
ETHYLBENZENE			
M-CYLENE			
STYRENE		0.22	0.29
1,4-DICHLOROBUTANE			0.08
O-XYLENE		3.32	9.60
1,1,2,2-TETRACHLOROETHANE			
1,2,3-TRICHLOROPROPANE			
1-NONENE			
NONANE		0.74	
ISOPROPYLBENZENE			
2-CHLOROTOLUENE	0.31		
3-CHLOROTOLUENE			
N-PROPYLBENZENE			
4-CHLOROTOLUENE			
3-ETHYLTOLUENE	0.37	0.11	0.61
4-ETHYLTOLUENE			
1,3,5-TRIMETHYLBENZENE	0.43	0.23	0.45
2-ETHYLTOLUENE			0.27
T-BUTYLBENZENE			1.00
1,2,4-TRIMETHYLBENZENE	0.86	0.70	1.74
1,3-DICHLOROBENZENE			
1-DECENE			0.05
A-CHLOROTOLUENE			
1,5-DICHLOROPENTANE			
DECANE	1.70	1.77	1.79
SEC. BUTYLBENZENE			
3-(CHLOROMETHYL)-HEPTANE			
1,2,3-TRIMETHYLBENZENE		0.17	
1-ISOPROPYL-4-METHYLBENZENE			4.64
1,2-DICHLOROBENZENE			
INDAN			
N-BUTYLCYCLOHEXANE			
1,3-DIETHYLBENZENE			
1,4-DIETHYLBENZENE			
N-BUTYLBENZENE			
1,2-DIETHYLBENZENE			
DECALIN			
UNDECANE	4.74	4.17	4.53
1,2,3,5-TETRAMETHYLBENZENE			0.28
DIISOPROPYLBENZENE			0.58
1,2,3,4-TETRAMETHYLBENZENE	0.65		0.29
TETRALIN			
DODECANE	7.19	6.83	8.54

PLANE SAMPLE
DATE: JULY 16/84

DATE: JULY 16/84

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COMPOUND NAME	1010-1028	1029-1059	1121-1151	1229-1244
PROPANE	2.51		1.98	
PROPADIENE				
PROPYNE				
CHLOROMETHANE				
CYCLOPROPANE				
ISOBUTANE			0.84	
VINYL CHLORIDE				
1-BUTENE	0.68			
1,3-BUTADIENE				
BUTANE	3.81		1.54	
1-BUTYNE				
CHLOROETHANE				
3-METHYL-1-BUTENE				
2-METHYLBUTANE	4.64		1.95	
1-PENTENE			0.10	
PENTANE				
ISOPRENE			0.31	
TRANS-2-PENTENE				
DICHLOROMETHANE				
2-METHYL-2-BUTENE				
2-CHLORO-2-METHYLBUTANE				
3-CHLOROPROPENE				
2,2-DIMETHYLBUTANE				
3-METHYL-1-PENTENE				
2,3-DIMETHYLBUTANE		0.28	0.66	
3-METHYLPENTANE				
1-HEXENE				
CIS-1,2-DICHLOROETHYLENE				
2-CHLOROBUTANE				
HEXANE				
CHLOROFORM				
TRANS-3-HEXENE				
3-CHLORO-2-METHYLPROPENE				
METHYLCYCLOPENTANE			0.15	
1,2-DICHLOROETHANE				
1,1,1-TRICHLOROETHANE				
1-CHLOROBUTANE				
BENZENE	15.99	8.25	7.14	3.64
CARBON TETRACHLORIDE				
CYCLOHEXANE				
2-METHYLHEXANE				
2,3-DIMETHYLPENTANE	1.00	1.75	0.16	2.52
CYCLOHEXENE				
DIBROMOMETHANE				
3-METHYLHEXANE	0.33	0.34	0.16	0.37
1,2-DICHLOROPROPANE				
2,3-DICHLOROPROPANE				
TRICHLOROETHYLENE				
2,2,4-TRIMETHYLPENTANE	4.19	13.98	1.27	21.65
1-HEPTENE				
HEPTANE	0.22	0.13	0.10	0.11
1-CHLORO-3-METHYLBUTANE				
TRANS-2-HEPTENE				

Total hydrocarbons ug/m3:	47.37	50.71	41.66	51.96
Alkanes ug/m3	20.94	25.33	14.70	36.37
Cycloalkanes ug/m3	0.00	0.08	0.15	0.15
Alkenes ug/m3	0.68	0.27	0.67	0.00
Cycloalkenes ug/m3	0.00	0.00	0.00	0.00
Alkynes ug/m3	0.00	0.00	0.00	0.00
Aromatics ug/m3	25.73	24.66	26.14	14.15
Chlorinated alkanes ug/m3	0.00	0.00	0.00	1.29
Chlorinated alkenes ug/m3	0.00	0.00	0.00	0.00
Chlorinated aromatics ug/m3	0.00	0.37	0.00	0.00
Total # of compounds identified	19	21	27	21
Total # of peaks	62	77	77	80
Total area of peaks	1442.78	1492.29	1299.98	1900.02
Area of identified peaks	546.72	986.40	709.63	1054.89
Area % identified peaks	38	66	55	56
Toluene:Ethylbenzene	0.00	0.75	0.73	1.04
Benzene:Ethylbenzene	18.17	7.05	5.25	2.82
Xylenes:Ethylbenzene	8.14	9.98	9.53	4.03
Ethylbenzene:Ethylbenzene	1.00	1.00	1.00	1.00

METHYLCYCLOHEXANE	0.09	0.40	
2,5-DIMETHYLHEXANE	2.85	1.27	
4-METHYLCYCLOHEXENE			
1-CHLOROPENTANE			
1,1,2-TRICHLOROETHANE			
TOLUENE	1.55	3.54	
1,3-DICHLOROPROPANE			
2-METHYLHEPTANE			
1,2-DIBROMOETHANE			
1-OCTENE			
TRANS-1,2-DIMETHYLCYCLOHEXANE		0.07	
TRANS-4-OCTENE			
TETRACHLOROETHYLENE		1.01	
OCTANE		0.46	
2-METHYL-1-HEPTENE			
2-OCTENE			
CIS-1,2-DIMETHYLCYCLOHEXANE			
CHLOROBENZENE			
PROPYLCYCLOPENTANE			
ETHYLCYCLOHEXANE		0.21	
1-CHLOROHEXANE			
ETHYLBENZENE	0.22	1.24	0.33
M-XYLENE	0.52	3.51	1.18
STYRENE			
1,4-DICHLOROBUTANE			
O-XYLENE	0.28	1.95	0.96
1,1,2,2-TETRACHLOROETHANE			
1,2,3-TRICHLOROPROPANE			
1-NONENE			
NONANE	0.27	0.63	0.24
ISOPROPYLBENZENE		0.35	0.57
2-CHLOROTOLUENE			
3-CHLOROTOLUENE			
N-PROPYLBENZENE			
4-CHLOROTOLUENE	0.17	0.37	
3-ETHYLTOLUENE	0.10	0.41	
4-ETHYLTOLUENE			
1,3,5-TRIMETHYLBENZENE			
2-ETHYLTOLUENE			
T-BUTYLBENZENE		0.85	
1,2,4-TRIMETHYLBENZENE	0.28	0.95	
1,3-DICHLOROBENZENE			
1-DECENE			
A-CHLOROTOLUENE			
1,5-DICHLOROPENTANE			
DECANE		1.53	
SEC. BUTYLBENZENE			
3-(CHLOROMETHYL)-HEPTANE			
1,2,3-TRIMETHYLBENZENE			
1-ISOPROPYL-4-METHYLBENZENE			
1,2-DICHLOROBENZENE			
INDAN			
N-BUTYLCYCLOHEXANE			
1,3-DIETHYLBENZENE			
1,4-DIETHYLBENZENE			
N-BUTYLBENZENE			
1,2-DIETHYLBENZENE			
DECALIN			
UNDECANE			
1,2,3,5-TETRAMETHYLBENZENE			
DIISOPROPYLBENZENE			
1,2,3,4-TETRAMETHYLBENZENE			
TETRALIN			
DODECANE			

DATE: JULY 18/84

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TDAMS_5_UPDATED

Total hydrocarbons ug/m3:	20.04
Alkanes ug/m3	6.61
Cycloalkanes ug/m3	0.10
Alkenes ug/m3	0.00
Cycloalkenes ug/m3	0.00
Alkynes ug/m3	0.00
Aromatics ug/m3	13.33
Chlorinated alkanes ug/m3	0.00
Chlorinated alkenes ug/m3	0.00
Chlorinated aromatics ug/m3	0.00

Total # of compounds identified	21
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Total # of peaks	63
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Total area of peaks	991.17
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Area of identified peaks	375.99
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Area % identified peaks	38
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Toluene:Ethylbenzene	1.61
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Benzene:Ethylbenzene	24.32
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Xylenes:Ethylbenzene	5.68
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Ethylbenzene:Ethylbenzene	1.00
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